The European Union Deforestation Regulation (EUDR) and Colombian Smallholder Coffee Producers: Between Environmental Sustainability and Social Justice

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1 Abstract

The European Union Deforestation-Free Products Regulation (EUDR), which will enter into force on December 30, 2026, represents a critical turning point for the Colombian coffee sector. This study analyzes the implications of the EUDR for the country's 540,000 coffee producers, of whom 96% are smallholders cultivating less than five hectares. Through an extensive review of academic literature, regulatory documents, and sectoral data, the article examines the regulation's fundamental paradox: while it seeks to promote environmental sustainability, its compliance requirements—precise geolocation, land tenure documentation, full traceability, and verification of "labor rights"—threaten to exclude precisely the most vulnerable producers, who grow coffee in biodiverse agroforestry systems. The study identifies five critical structural barriers: (1) land tenure informality affecting 52% of rural properties; (2) regressive compliance costs of USD 105,000–215,000 for cooperatives of 500 farmers; (3) regulatory ambiguity regarding "fair pay" and labor rights requirements; (4) inadequate institutional capacity for farm-level labor verification; and (5) an impossibly compressed implementation timeline. The analysis reveals that, without urgent intervention, up to 280,000 coffee-farming families (50% of the sector) face the risk of exclusion from the European market, which accounts for 30% of Colombian coffee exports (USD 580–700 million annually). The article concludes that equitable implementation of the EUDR requires massive financing for smallholders, accelerated land formalization, clarification of labor requirements, and cost-redistribution mechanisms along the value chain. Without these adjustments, the EUDR may exacerbate the North–South inequalities that have historically characterized global coffee value chains, transforming a well-intentioned environmental regulation into a mechanism of economic concentration and social exclusion.

Keywords: Environmental Regulation, Deforestation, Farm Household, Informal Sector, Working Conditions, Export Restrictions.

2 Introduction.

On June 29, 2023, the European Union adopted Regulation (EU) 2023/1115 on deforestation-free products (EUDR), an unprecedented environmental law that will prohibit the placement on the European market of products linked to deforestation after December 31, 2020 (European Commission, 2023). The regulation covers seven commodities—coffee, cocoa, palm oil, soy, timber, cattle, and rubber—responsible for 90% of agriculture-driven global deforestation (Pendrill et al., 2019). For the global coffee industry, the EUDR represents a paradigm shift: for the first time, access to the European market—which consumes more than 30% of the world's coffee—will depend on the ability to demonstrate full traceability to the farm level, absence of post-2020 deforestation, and compliance with "all relevant legislation of the country of production" (Article 2(40), Regulation 2023/1115).

For Colombia, the world's third-largest coffee producer, with 540,000 coffee-farming families cultivating 840,000 hectares, the EUDR poses a fundamental contradiction (Federación Nacional de Cafeteros, 2025). On the one hand, Colombia has significant structural advantages relative to competing origins: the Coffee Information System (SICA) has geolocated 99% of coffee farms; 98% of plots are deforestation-free; and the National Federation of Coffee Growers (FNC) provides robust institutional infrastructure that facilitates collective compliance (Cafe Imports, 2025). On the other hand, 96% of Colombian coffee farms are smaller than five hectares, with an average size of only 1.57 hectares; 52% of rural properties lack formal land titles; and 95% of coffee workers are seasonal or informal, without social security coverage (UPRA/CAF, 2019; Verité, 2023). This atomized structure of peasant production, combined with pervasive informality, creates conditions in which documentation, digital verification, and individualized traceability requirements are structurally misaligned with production realities.

The compliance deadline—December 30, 2026, for large and medium-sized enterprises, and June 30, 2027, for micro and small enterprises (European Commission, 2024)—leaves less than 13 months for the Colombian coffee sector to close critical gaps in: (1) land formalization, which typically takes months or years; (2) obtaining data-use consent from the remaining 27% of producers; (3) implementing digital traceability systems in rural regions with limited connectivity; and (4) verifying compliance with "labor rights" whose legal scope remains ambiguous.

This article examines the implications of the EUDR for Colombian smallholder coffee producers from a critical political economy perspective, asking: Can an environmental regulation designed and imposed unilaterally by the Global North be implemented equitably in Global South contexts characterized by structural informality, rural poverty, and institutional weakness? Who will bear the costs of the transition to "deforestation-free" supply chains? How will benefits and burdens be redistributed among different actors along the value chain? The central thesis argues that, without urgent and large-scale intervention to close compliance gaps, the EUDR threatens to exclude up to 280,000 coffee-farming families (50% of the sector) from the European market, consolidating historical North–South power asymmetries and transforming a well-intentioned environmental regulation into a mechanism of economic concentration.

3 Conceptual Framework: Climate Justice and Power Asymmetries in Global Commodity Chains.

3.1 Buyer-Driven Value Chains and Unequal Value Distribution.

Global agricultural commodity chains are characterized by profoundly asymmetric distributions of captured value, in which producers in Global South receive only a small fraction of the final price paid by consumers in the North (Gereffi, 1994; Ponte, 2002). In the case of coffee, studies document that African producers receive barely 10% of final retail value (ITC, 2021), while Northern intermediaries, roasters, and retailers capture 80–90% of value added. This inequitable distribution is not a market accident but the result of governance structures in which coffee chains correspond to a "buyer-driven" typology, with power concentrated among roasters and traders in the Global North (Ponte & Gibbon, 2005).

Grabs and Ponte (2019), in a 40-year network analysis of coffee trade (1976–2015), demonstrate that persistent power asymmetries are structural features rather than aberrations. Despite changes in governance forms, from the International Coffee Agreement system to specialty coffee, direct trade, and certification fundamental power inequities between Northern buyers and Southern producers remain unchanged. Demonstrative power (the ability to demonstrate compliance with standards) and constitutional power (the ability to set standards) flow unidirectionally from North to South, raising doubts as to whether sustainability initiatives enable lasting changes in value distribution.

3.2 Regulatory Colonialism and European Environmental Unilateralism.

The concept of "regulatory colonialism" refers to the power of Global North jurisdictions to unilaterally define environmental, social, and governance standards that producing countries in the South must meet to maintain market access (De Schutter, 2020). The EUDR represents a paradigmatic example: the EU establishes definitions of "deforestation," "legality," "forest," and "due diligence" without genuine consultation or negotiation with producing countries (Higonnet, 2025). Producing countries were "consulted," but not treated as equal partners in regulatory design. Compliance costs and implementation burdens fall entirely on Southern producers, while Northern companies and European consumers benefit from "deforestation-free" claims without internalizing the costs of transforming production systems.

This regulatory asymmetry manifests along three critical dimensions: (1) Definitional—the EUDR employs a simplified FAO concept of deforestation that creates collateral damage for small-scale agroforestry systems that resemble forests, misclassifying shade-grown coffee as "forest" and penalizing environmentally superior practices (Van Noordwijk et al., 2024); (2) Procedural—geolocation, documentation, and traceability requirements reflect the institutional capacities of developed countries (formal titles, digital registries, internet connectivity) that do not correspond to the realities of customary tenure, informal possession, and fragmented cadastral systems in developing countries (Wageningen University, 2024); and (3) Distributive—although the European Commission allocated €86 million for partner-country assistance and €70 million through the Team Europe Initiative, these amounts are manifestly insufficient given the scale of the challenge (European Commission, 2024).

3.3 Climate Justice and Just Transitions.

The climate justice framework questions who bear the costs of environmental mitigation and adaptation, demanding that transitions toward low-carbon and deforestation-free economies do not reproduce or exacerbate existing inequalities (Schlosberg, 2012). Fairtrade International (2024) argues that it is "simply unjust" for small-scale farmers to shoulder the costs associated with EU laws while terms of trade remain unchanged. A just transition in the context of the EUDR would require: (1) Shared responsibility, with equitable distribution of compliance costs along the entire value chain rather than their externalization onto the most vulnerable producers; (2) Capacity building and resources, including massive investment in land formalization, technological adoption, and capacity development financed by Northern consumers and firms that benefit from "deforestation-free" products; and (3) Genuine participation, involving Southern producers in the design of regulatory requirements, recognizing that local knowledge of agroforestry systems, deforestation patterns, and verification feasibility is essential for effective and equitable regulation.

4 The Colombian Coffee Sector: Structure, Institutions, and Vulnerabilities.

4.1 Productive Structure: Atomization and Concentration of Poverty.

The Colombian coffee sector is characterized by extreme atomization of production combined with strong sectoral institutionalization. The FNC represents more than 540,000 producers cultivating 840,000 hectares, generating 800,000 direct jobs and supporting 2.2 million people—26% of Colombia's rural population (Federación Nacional de Cafeteros, 2025). Landholding structures reveal a concentration of rural poverty: 96% of farms are smaller than five hectares yet produce 69% of national coffee output; the average farm size is only 1.57 hectares; and 60% of producers cultivate less than one hectare (Table 1). This minifundist structure reflects decades of inherited land fragmentation, forced displacement due to armed conflict (7.21 million people abandoned land since 1985), and demographic pressure on limited arable land (Centro Nacional de Memoria Histórica, 2015).

Table 1. Distribution of Colombian Coffee Farms by Size (2024)

Farm Size	% of Farms	% of Production	Average Size (ha)
< 1 hectare	60%	25%	0.5
1-5 hectares	36%	44%	2.3
5-10 hectares	3.1%	15%	6.8
> 10 hectares	0.9%	16%	22.5
Total	**100%**	**100%**	**1.57**

Source: Authors' elaboration based on Federación Nacional de Cafeteros (2025) and Analdex (2025).

Regional distribution further intensifies vulnerabilities. Four departments account for more than 50% of national production: Huila (17.8%), Antioquia (13.2%), Tolima (12.6%), and Cauca (11.3%) (Analdex, 2025). Regions such as Cauca, Nariño, and Catatumbo—areas with a long history of armed conflict, limited state presence, and high land informality—face a particularly high risk of exclusion under the EUDR. In Nariño, the average coffee farm is smaller than one hectare, with only 37 producers owning more than five hectares. In Cauca, more than 90,000 coffee growers average just over one hectare each. These regions experienced massive displacement during decades of conflict: many current coffee farmers are returnees or new occupants farming land with broken or nonexistent title chains.

4.2 Coffee Institutions: Strong Sectoral Governance with Gaps in Labor Verification.

Colombia presents an institutional paradox: robust organizational capacity combined with fragmented labor oversight. The FNC, founded in 1927, constitutes an exceptional institutional infrastructure, with presence in 600 municipalities through 492 purchasing points and 36 cooperatives. The guaranteed purchase system, the National Coffee Fund (COP 370 billion in reserves as of December 2023), and Cenicafé—the world's largest coffee research center operated by producers—demonstrate unparalleled sectoral coordination capacity (Federación Nacional de Cafeteros, 2025).

The FNC has achieved remarkable progress in EUDR preparation: geolocation of 99% of coffee farms (no other producing country has a comprehensive coordinate database for all registered producers), data-use consent obtained from 73% of producers, and the launch of the Coffee Regulation Portal on August 30, 2024, providing exporters with access to geographic coordinates and confirmation of coffee establishment prior to December 31, 2020 (Cafe Imports, 2025).

However, this institutional strength contrasts sharply with structural weaknesses in labor verification. The FNC, whose mandate focuses on producer support rather than farm-level labor oversight, lacks the capacity or authority to systematically monitor working conditions at the farm level. Extension services provide agronomic assistance, not labor compliance inspections. While Colombia has a comprehensive labor legal framework—including mandatory employer contributions of up to 36.5% of wages, benefits such as service bonuses, paid vacations, severance payments, and maternity and paternity leave—enforcement in the coffee sector is extremely weak due to: (1) the prevalence of informality among 95% of seasonal workers; (2) limited governmental inspection capacity in geographically dispersed rural areas; (3) mountainous terrain that restricts access; (4) seasonal labor patterns involving migrant workers (currently 9 out of 10 pickers are Venezuelan migrants); and (5) the widespread presence of unpaid and unregistered family labor (Verité, 2023).

4.3 Importance of the European Market and Vulnerability to Exclusion.

The European Union constitutes the second most important market for Colombian coffee, accounting for approximately 30% of total exports after the United States (over 40%) (Analdex, 2023). In absolute terms, Colombia exports between 2.4 and 2.8 million 60-kg bags annually to the EU, valued at USD 580–700 million (Federación Nacional de Cafeteros, 2025). Germany (7–8% of total exports) and Belgium (7.2%) are the main destinations, followed by Spain, France, Italy, and other European countries.

Colombian coffee received Protected Designation of Origin (PDO) status from the EU in 2007, recognizing the distinctive quality of 100% washed mild Arabica coffee. Colombia has built a global reputation based on premium positioning, with differentials reaching +75 ¢/lb (+USD 1.56/kg) in September 2022, representing approximately 25% of the total price (ICO, 2022). Forty percent of Colombian production receives specialty certification premiums (Rainforest Alliance, Fairtrade, Bird Friendly, 4C). The European market is the primary destination for high-end Colombian specialty coffees.

However, Colombia has lost market share in Europe in recent years, declining from 6.5% (2016) to 4.2% (2022) of total EU coffee imports (Eurostat, 2023). This erosion reflects a pre-EUDR loss of competitiveness: Brazil and Vietnam achieved productivity increases of 40% and 56%, respectively (1990–2013), while Colombia experienced a 20% decline in output per hectare (2000–2013) (ICO, 2015). Colombian production costs exceed those of competitors such as Honduras, Peru, and Nicaragua. The EUDR threatens to accelerate this decline by excluding the most vulnerable producers—precisely those cultivating coffee in biodiverse agroforestry systems that Europe claims to want to protect.

5 EUDR Requirements: Regulatory Ambition in Collision with Structural Realities.

5.1 Regulatory Architecture: Comprehensive Due Diligence and Absolute Traceability.

Regulation (EU) 2023/1115 establishes the most comprehensive due diligence regime ever implemented for agricultural products. Article 2(40) defines "legality" expansively, encompassing not only land titles but also use rights, environmental legislation, third-party rights (including Indigenous Peoples' rights through Free, Prior and Informed Consent), labor rights, and human rights protected under international law. For coffee, this means that each lot exported to the EU must demonstrate: (1) production on land not deforested after December 31, 2020; (2) compliance with all applicable legislation of the country of production; and (3) full traceability through geographic coordinates (European Commission, 2023).

Geolocation requirements are technically precise but practically challenging. Farms smaller than four hectares—the vast majority in Colombia, where 96% of producers cultivate less than five hectares—require a central GPS point with six decimal places of precision in the WGS84 system. Larger farms require full polygons describing their perimeter. The Federation reports 99% geospatial coverage, but a critical gap persists: only 73% of producers have granted data-use consent (habeas data), with a target of 93% by December 2024 (Cafe Imports, 2025). The remaining 27%—approximately 150,000 families—face automatic exclusion without such consent, regardless of whether their coffee is deforestation-free.

The risk assessment system operates at three differentiated levels. In May 2025, the European Commission classified Colombia as a "standard-risk" country, requiring full due diligence for all shipments (European Commission, 2025). This contrasts with more than 140 "low-risk" countries (including, strikingly, Vietnam), for which simplified procedures apply. For Colombia, each operator must: (1) collect detailed information on geographic origin, quantity, production date, and product description (Article 9); (2) conduct a risk assessment considering deforestation prevalence, supply chain complexity, corruption levels, Indigenous presence, armed conflict, and documentation quality (Article 10); and (3) implement mitigation measures if risk is not "negligible," such as field visits, third-party audits, or independent analysis (Article 11). EU authorities will inspect 3% of operators trading Colombian products annually.

5.2 The "Labor Rights" Paradox: Legal Ambiguity and the Exclusion of "Fair Pay".

Article 2(40)(e) of the Regulation explicitly includes "labor rights" in the definition of legality with which products must comply. However, the European Commission's Guidance published in April 2025 (C/2025/4524) introduces a critical interpretative restriction: legislation is considered "relevant" only if it "concerns the legal status of the area of production" or can be specifically linked to preventing deforestation and forest degradation (European Commission, 2025). The Guidance indicates that labor rights apply primarily to persons "present in the area of production to the extent relevant for the objectives of the EUDR" or "with rights over the area of production," emphasizing land tenure rights, Indigenous rights, and local community rights, while omitting examples of general labor laws such as minimum wages, working hours, fair remuneration, or occupational health and safety.

Organizations such as Preferred by Nature have publicly criticized this interpretation for "sacrificing labor rights" and contradicting the regulation's clear wording (Specialty Coffee Association, 2024). The legal community has highlighted the tension between the explicit inclusion of labor rights in Article 2(40) and the restrictive reading of the Guidance, which lacks binding legal force and could be interpreted differently by national courts. Critically, the term "fair pay" does not appear anywhere in the official EUDR text. There is no explicit requirement for "fair remuneration," "living wages," or "living incomes" beyond compliance with the labor laws of the country of production.

This legal ambiguity places Colombian smallholders in a regulatory limbo. Colombia has a national minimum wage (COP 1,423,500 per month in 2025, approximately USD 323–335), but studies by Verité and the Anker Research Institute (2023) document that a living wage in coffee-growing regions such as Antioquia and Huila is approximately 50% higher than the legal minimum. With 95% of coffee workers in seasonal or informal employment without social security, paid on a piece-rate basis averaging COP 350–500 per kilogram of harvested cherries (USD 0.11–0.16), and where workers must harvest 120–250 kilograms per day to earn adequate income, the gap between formal legality and material justice is vast (Lyon et al., 2024; Daily Coffee News, 2023).

The question of what constitutes acceptable labor compliance under the EUDR remains unanswered, creating uncertainty as to whether Colombian exporters could face shipment rejections for labor non-compliance even if they formally comply with Colombian law. This ambiguity benefits European buyers—who can demand standards higher than legal minimums as protection against reputational risk—but disadvantages Colombian producers, who face a moving target of compliance requirements without regulatory clarity.

5.3 Implementation Timeline: Regulatory Urgency versus Adaptive Capacity.

Originally set for December 2024, mandatory compliance was postponed following pressure from producing-country governments and the coffee industry. The confirmed deadlines are December 30, 2025, for large and medium-sized operators, and June 30, 2026, for micro and small enterprises (European Commission, 2024). In October 2025, the Commission confirmed that no further delays would be granted. Although a proposed "leniency" period from January to June 2026 would focus on education rather than immediate sanctions, legal obligations apply as of December 30, 2025.

For Colombian producers exporting the 2025–2026 harvest, this timeline is impossibly compressed. Land title formalization takes months to years: legal succession processes for inherited land without formal probate—extremely common—are costly (notarial and registry fees, legal assistance), time-consuming (months to years), require specialized legal knowledge, and demand travel to urban centers with notaries and registries—often impossible for elderly farmers in remote areas with limited financial resources (USAID, 2022). Traceability systems require significant investment in digital platforms, GPS devices, and technical training. Training hundreds of thousands of dispersed rural producers in mountainous areas demands infrastructure that simply does not exist at the required scale.

The current pace of land formalization in Colombia is manifestly inadequate. The National Land Agency (ANT) formalized 3.03 million hectares over several years under the Peace Agreement, against a target of 7 million (Government of Colombia, 2020). Colombia has

6.8 million people and more than 2 million parcels with insecure land rights. At the current pace, full formalization would take decades, not months.

6 Land Tenure Informality: An Insurmountable Structural Obstacle.

6.1 Scale and Historical Causes of Informality

According to 2019 data from UPRA/CAF (Rural Agricultural Planning Unit and Development Bank of Latin America), 52% of rural properties in Colombia lack formal titles. This figure underestimates the magnitude of the problem: additional studies estimate that 20–60% of land tenure operates under informal arrangements, and 28.3% of properties are not registered at all (World Bank, 2020). Sixty-six percent of cadastral information is outdated by an average of 16.4 years, and only 5.7% of national territory has up-to-date land registry information (UPRA, 2019).

For the coffee sector specifically, this informality is devastating: 95% of the 540,000–557,000 producers are smallholders with less than five hectares, and 60% cultivate less than one hectare—precisely the segment least likely to possess formal titles (Federación Nacional de Cafeteros, 2025). Regional variations are dramatic and strongly correlated with the history of armed conflict. In Nariño, the average coffee farm is less than one hectare. In Cauca, more than 90,000 coffee growers average just over one hectare each. These regions—Cauca, Nariño, Tolima, Norte de Santander—experienced massive displacement over decades of conflict: an estimated 7.21 million people abandoned their land since 1985, resulting in 4 million hectares left vacant (Centro Nacional de Memoria Histórica, 2015). Eighty-seven percent of internally displaced people originate from rural areas, and many current coffee farmers are returnees or new occupants farming land with broken or nonexistent title chains.

6.2 Typologies of Informal Tenure: Legal Traps with No Rapid Solution.

Complex tenure situations constitute legal traps that cannot be resolved quickly:

> **State-owned public lands (baldíos)** present complexity. Between 1901 and 2012, the Colombian state allocated approximately 23 million hectares, but many farmers occupy baldíos while awaiting adjudication, a process that can take decades (Grupo de Memoria Histórica, 2013). Critically, baldíos are imprescriptible under Colombian law, meaning prolonged occupation does not generate ownership rights. Constitutional Court Ruling SU-288 of 2022 ordered the recovery of improperly adjudicated baldíos, creating massive legal uncertainty over existing titles.
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> **Possession without formal title**, in which farmers exercise de facto control with animus domini but lack registration, is endemic. The historical presumption under

Law 200 of 1936 was tacitly repealed by Law 160 of 1994, leaving a legal vacuum. Good-faith possessors have no clear mechanism to convert possession into registered ownership without costly and prolonged judicial proceedings.

Unsettled inheritances (land inherited without formal probate) are extremely common: properties remain registered in the names of deceased parents or grandparents while multiple heirs work the land. Legal succession processes are costly (notarial fees of 0.3% of property value, registration fees of 0.5%, registry tax of 1%, stamp tax reinstated in 2023, certificates of title history, document authentication, and legal assistance), time-consuming (months to years), require specialized legal knowledge, and demand travel to urban centers with notaries and registries (USAID, 2022). For a one-hectare coffee farm valued at USD 5,000–10,000, formal costs can reach USD 200–300 or more, excluding opportunity costs of time away from the farm, transportation, food, and lodging. These costs are unsustainable for producers whose annual net coffee income typically ranges between USD 2,000 and 3,000.

6.3 Institutional Weaknesses: Fragmented Cadastre and Limited Capacity.

Colombian institutions lack the capacity for mass formalization within EUDR timelines. The Multipurpose Cadastre, a key commitment of the 2016 Peace Agreement, set targets of covering 60% of national territory by 2022 and 100% by 2025. These targets were not met: 28% of the territory lacks cadastral coverage, and 52% has outdated information (Government of Colombia, 2020). The National Land Agency (ANT), successor to the disbanded INCODER (eliminated due to massive corruption), faces a land formalization mandate with chronically insufficient funding. The Peace Agreement target of formalizing 7 million hectares resulted in only 3.03 million hectares. Estimated required investment is COP 5.28 trillion (USD 1.4 billion) between 2019 and 2025—resources that never materialized.

The land registry system is fragmented and dysfunctional. There is no national real estate registry; each municipality maintains an independent registry office. Registration cannot be completed electronically and requires in-person presence at the office where the property is located. Many coffee regions are in remote mountainous areas with poor road infrastructure, limited access, restricted office hours, and long waiting times. Interoperability between cadastral and registry systems is historically poor; the same property may have different identifiers in each system. More than 37,000 pending agrarian cases seek to clarify land rights, but the judicial system is overloaded with multi-year backlogs (World Bank, 2020).

7 Compliance Costs and Risks of Market Exclusion.

7.1 Cost Estimates: Regressivity and Concentration of Burdens

Compliance costs are significant and disproportionately concentrated on smaller producers. A study by Profundo (2024) found that large firms can comply with the EUDR at a cost equivalent to 0.06% of annual revenues, while SMEs face costs of 0.17%—nearly three times higher proportionally. For European consumers, the price impact is only 0.018% (negligible) (Profundo, 2024). ClientEarth confirms that large coffee companies can comply at 0.03–0.07% of annual revenues (ClientEarth, 2024). These modest figures mask a harsh reality: costs are not borne by European buyers but by Colombian producers.
For Colombian cooperatives with more than 500 farmers, estimated investments include (Table 2):

Table 2. Estimated EUDR Compliance Costs for a Cooperative of 500 Farmers

Component	Year 1 (USD)	Annual (USD)
Certification audit	$10.000-20.000	$10.000-15.000
Traceability platform setup	$50.000-100.000	$10.000-25.000
GPS equipment/devices	$10.000-25.000	N/A
Training programs	$15.000-30.000	$5.000-10.000
Staff/administration	$20.000-40.000	$5.000-10.000
Total	**$105.000-215.000**	**$30.000-60.000**

Source: Authors' elaboration based on GlobalData (2024), Profundo (2024), and interviews with Colombian cooperatives.

For small producers earning USD 2,000–3,000 annually from coffee (net income of EUR 0.3–1.0 per kg after costs), even modest compliance expenses represent a substantial share of income. The burden falls disproportionately on smallholders without fair redistribution mechanisms. Unlike voluntary certifications that allowed price premiums, the EUDR establishes a compliance floor—meeting requirements merely grants market access, not differentiation. The impact is regressive: additional compliance costs reduce operating margins without enabling higher prices; larger producers can offset costs through increased market share.

7.2 Sanctions for Non-Compliance and Exclusion Mechanisms.

Sanctions for non-compliance are draconian. Fines can reach up to 4% of total annual EU turnover in the preceding financial year, proportional to environmental damage and product value, escalating with repeated changes. Immediate confiscation of products at EU borders; rejection of non-compliant coffee shipments; seizure of revenues generated by non-compliant products. For serious or repeated violations: temporary bans on placing products on the EU market (up to 12 months), exclusion from public procurement processes (up to 12 months), exclusion from access to public financing, prohibition from using simplified due diligence procedures, and potential publication of offenders' names on the European Commission's website (European Commission, 2023).

Crucially, although Colombian producers/exporters are not directly subject to EU sanctions, the critical impact is the loss of buyer relationships. Primary legal responsibility rests with the first place on the EU market. EU importers face all financial and market exclusion penalties and will therefore intensively scrutinize supplier data to avoid liability. EU importers will exclude non-compliant suppliers, causing reputational damage in international markets, difficulty re-entering the EU market after exclusion, and potential spillover effects in other export markets.

7.3 Triage Scenario: Who Will Be Excluded

The concentration mechanism operates through adverse selection: buyers and exporters, facing the risk of massive EUDR fines, will preferentially source from producers with clear documentation and demonstrated compliance capacity. This creates a vicious cycle:

> **Best positioned** are producers with formal land titles, already engaged with the FNC/cooperatives, in regions with strong institutional presence (Coffee Axis: Caldas, Quindío, Risaralda; major departments: Huila, Antioquia, Tolima).
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> **Moderately positioned** are producers with informal documentation, active in the SICA system, within organized cooperatives, but lacking full formal titles.
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> **Most vulnerable** are elderly producers with low digital literacy, those in conflict-affected areas (Cauca, Nariño, Catatumbo), unresolved inheritances, occupants of state lands awaiting adjudication, female-headed households, and Venezuelan migrant workers.
> An estimated up to 280,000 coffee-farming families (50% of approximately 560,000) face a high risk of market exclusion without urgent intervention. These are precisely the producers that specialty coffee initiatives have sought to include for decades, and whom the Peace Agreement aimed to support (Government of Colombia, 2016).

8 Gender Dimensions and the Deepening of Inequalities

Women in the Colombian coffee sector occupy a contradictory position of essential labor yet invisible ownership. They comprise a significant share of the coffee labor force (harvesting, processing), and many coffee households are female-headed. However, land titles are frequently registered in men's names despite women's substantial labor contributions. Rural women have lower access to formal land titles, lower literacy levels (particularly digital literacy), and cultural barriers to participation in formal institutions (Lyon et al., 2024).
The EUDR, by requiring formal documentation and data-use consent, amplifies these gender inequalities. Female-headed households—typically among the smallest and most vulnerable producers—face a particularly high risk of income loss and market exclusion.

Gender-disaggregated data on Colombian coffee producers remain scarce, rendering women's contributions and vulnerabilities largely invisible.
The concentration of benefits among large, formally documented producers is highly likely. Large producers (>10 hectares, 0.9% of farms but 16% of production) possess structural advantages: professional and administrative management capacity, access to capital for technological investments, existing systems of recordkeeping and documentation, economies of scale in compliance costs, direct relationships with exporters and buyers, and technical expertise with legal support. Small producers (<5 hectares, 96% of farms) face opposite conditions: limited financial resources for compliance investments, minimal administrative capacity, low digital literacy and technological access, dispersed locations with poor connectivity, dependence on intermediaries and cooperatives, and frequent lack of formal land titles and legal documentation.

9 Compliance Mechanisms: Existing Capacities and Critical Gaps

9.1 Institutional Strengths: SICA and Multi-Actor Coordination

Colombia possesses unique structural advantages that position it among the three best-prepared producing countries (alongside Brazil and Costa Rica), according to the International Coffee Organization. The FNC's Coffee Information System (SICA), operational since the 1990s, provides geolocation coverage of 100% of Colombia's coffee-growing area (Federación Nacional de Cafeteros, 2025). This represents a singular global advantage: no other producing country maintains a comprehensive database of farm coordinates for all registered producers.
The Federation launched the Coffee Regulation Portal on August 30, 2024, granting registered exporters exclusive access to: geographic coordinates or polygons of farms (with farmer consent), confirmation of coffee establishment prior to December 31, 2020 (the EUDR cutoff date), and information on existing certifications (Cafe Imports, 2025).
The Coffee, Forest and Climate Agreement represents a model of multi-actor coordination: 37 signatories representing 80% of Colombian exports, including government, companies, producers, and civil society. Solidaridad Colombia leads the Technical Secretariat. In March 2025, the partners launched an open-access EUDR Implementation Guide, a methodological roadmap based on a 1+ year pilot program with two companies and more than 3,000 producers in Antioquia, Risaralda, Huila, and Santander (Solidaridad, 2025).

9.2 Certifications and Technological Platforms

Rainforest Alliance updated its standards specifically to align with the EUDR at no additional support cost, eliminating tolerance for "minor conversion" after December 31, 2020, requiring full traceability through Identity Preserved or Mixed Identity Preserved supply chains, implementing a Sustainability Differential (SD)—a cash payment to farmers above market price—and requiring Sustainability Investments (SI), whereby companies must make cash or in-kind investments to support sustainable practices (Rainforest Alliance, 2024). As of May 2024, Louis Dreyfus Company had achieved Rainforest Alliance EUDR certification for six farm groups (one in Brazil, five in Colombia).

Rainforest Alliance has issued more than 270 EUDR-compliant farm group certificates.

Digital traceability platforms offer scalable solutions. TraceX Technologies provides end-to-end farm-to-cup traceability based on blockchain, GPS coordinate capture, automated generation of EUDR Due Diligence Statements (DDS), real-time monitoring, supplier risk assessment, a multilingual mobile app capable of offline operation for farmers, seamless integration with the EU Due Diligence Information System, and auto-generated compliance reports aligned with EUDR requirements (TraceX, 2024). The Trusty EUDR Compliance Platform offers a similar modular solution with online/offline data entry applications, GPS point/polygon mapping with satellite verification, API integration with the EU portal for DDS submission, and legal risk assessment tools (corruption, Indigenous rights, human rights compliance) (Trusty, 2024).

9.3 Critical Gaps Threatening Smallholder Inclusion

Despite these strengths, critical gaps remain:

First, there is no comprehensive national fund to support smallholder compliance. Technological platforms, data collection, and legal verification impose costs that the most vulnerable producers cannot absorb.

Second, land tenure informality affecting 52% of producers remains the primary barrier. The current pace of ANT formalization is insufficient at the required scale (formalizing 370 families in Cauca is a significant achievement but negligible compared to the 280,000 coffee families at risk).

Third, unorganized producers—more than 38 independent cooperatives outside the FNC and an unknown number of fully independent producers—are the most difficult to reach through programs.

Fourth, technical capacity is limited: low digital literacy (average farmer age is 53; 58% have average or below-average digital literacy), limited internet connectivity in remote areas, and data quality problems (over 10% polygon errors) (GSMA, 2023; Meridia, 2024).

Fifth, the Federation provides geodata but not deforestation risk analysis, which remains the responsibility of exporters. False positives for agroforestry systems persist due to satellite limitations in detecting canopy cover above 80% and lack of standardized methodologies.

Sixth, verification of legal compliance is complex: all local laws must be complied with, including those related to Indigenous territories and protected areas, variable regional regulations, limited legal support resources, and prohibitively high legal consultancy costs.

10 Critical Analysis: Regulatory Colonialism and the Reproduction of Historical Asymmetries

10.1 EUDR as European Environmental Unilateralism

The academic literature on global environmental governance identifies a fundamental tension between national sovereignty and transnational regulation (De Schutter, 2020). The

EUDR represents a paradigmatic case of European regulatory unilateralism: the EU designs and imposes standards on producing countries without meaningful consultation or negotiated terms. Producing countries were "consulted"—Colombia submitted comprehensive EUDR compliance reports to the EU in October 2025, documenting that 98% of coffee and cocoa plots are deforestation-free and that more than 80% of palm oil farms are georeferenced (Ministry of Trade of Colombia, 2025)—but they were not equal partners in regulatory design.

Higonnet (2025), founder of Coffee Watch, argues that "facing little pushback from civil society over abuses and benefiting from near-total impunity, many in the coffee industry still do not believe they will have to confront the EUDR." However, this characterization overlooks the fundamental power asymmetry: the issue is not that Colombian producers are unwilling to comply with environmental sustainability, but that they lack the capacity to meet requirements designed for the institutional contexts of developed countries within impossibly compressed timelines.

10.2 Inequitable Distribution of Costs versus Benefits

The political economy of the EUDR reveals a profoundly asymmetric distribution of costs and benefits. Costs fall entirely on Southern producers: land formalization, technological adoption, training, documentation, verification, and certification. Benefits accrue primarily to Northern actors: European companies obtain "deforestation-free" claims that enhance reputation and consumer access; European consumers receive assurances of "ethical" coffee without internalizing transformation costs; European policymakers gain political credit for environmental leadership.

Fairtrade International (2024) argues that it is "simply unjust" for small-scale farmers to bear the costs associated with EU laws while terms of trade remain unchanged. The EU has allocated €86 million for partner-country assistance and €70 million through the Team Europe Initiative—amounts that are manifestly insufficient given the magnitude of the challenge (European Commission, 2024). By comparison, Profundo (2024) estimates that the palm oil and rubber sectors alone face total compliance costs of USD 1.5 billion. For millions of smallholder coffee producers globally, aggregate costs would be multiples of this figure.

10.3 Persistence of Structural Asymmetries in Coffee Value Chains

The 40-year network analysis by Grabs and Ponte (2019) demonstrates that persistent power asymmetries are structural features of coffee value chains, not anomalies. Despite shifts in governance—from the International Coffee Agreement to specialty coffee, direct trade, and certifications—fundamental inequities between Northern buyers and Southern producers remain unchanged. Demonstrative and constitutional power in high-quality coffee segments flows unidirectionally from North to South, raising doubts as to whether the EUDR—another Northern-driven regulatory initiative—will disrupt these patterns or merely reinforce them under new forms.

Frontiers (2025) research on equity in Colombian coffee value chains provides empirical evidence of these structural asymmetries. Large actors exert significant influence over negotiation processes, government regulations, industry practices, and standards. Those at the production end receive only a small share of economic benefits. The current coffee value chain remains largely unchanged from colonial times; local communities derive limited benefits. Coffee exemplifies a "win–lose" relationship in which the Global North captures a disproportionate share of industry value.

Designed without equal participation of producing countries in standard-setting, the EUDR perpetuates this historical pattern. Its definition of land legality employs European legal concepts (individual property rights, formal documentation) that do not correspond to the realities of customary tenure, possession, and state lands in many producing countries. This imposition of legal norms reflects what critical scholars describe as "regulatory colonialism"—the power to define standards and requirements residing exclusively in the consuming North (De Schutter, 2020).

11 Policy Recommendations: Toward Fair and Inclusive Implementation

11.1 Immediate Interventions (0–6 months)

- **Establish a National EUDR Support Fund** to subsidize technology, legal verification, and certification for smallholder producers. Financing should come from a combination of national budget allocations, European international cooperation (a substantial increase beyond the current €86 million), and private-sector contributions (buyers and exporters). The estimated amount required is in the tens of millions of dollars to reach the 280,000 families at risk.
- **Leverage the FNC's existing cooperative structure** to disseminate EUDR requirements and provide group-based training. Prioritize GPS data collection as an essential first step beginning with mobile app–based mapping (low cost) and training cooperative staff as "data champions."
- **Build on existing certifications** for farmers already certified under Fairtrade or Rainforest Alliance, leverage existing systems and update data precision requirements rather than duplicating processes.
- **Pilot digital payment systems** by partnering with mobile money providers (e.g., Kenya's M-PESA model), testing digital payroll systems in selected cooperatives, and documenting payment flows for EUDR verification.

11.2 Medium-Term Strategies (6–18 months)

- **Dramatically accelerate land formalization** by scaling up the Mercy Corps/National Land Agency model (which has facilitated titling for 370 families in Cauca and approximately 40 in El Tambo), exploring blockchain-based digital registries, and prioritizing coffee-growing regions. A realistic target—formalizing 100,000 coffee properties in 24 months—would require multiplying current capacity by 10–20 times.
- **Create a unified national platform** built on SICA to avoid data duplication, integrating deforestation risk analysis (currently the responsibility of exporters), providing legal compliance verification services, and offering an accessible interface for all producers (not only FNC affiliates).

- **Implement outreach programs for non-FNC producers**, the more than 38 independent cooperatives and fully independent producers require dedicated resources, tailored technical assistance, and facilitated access to compliant markets.
- **Develop labor verification standards** by creating standardized employment documentation, establishing regional fair-wage benchmarks (acknowledging the 50% gap between legal minimum wages and living wages), implementing digital time and payment tracking, and training farmers in labor law compliance.

11.3 Long-Term Transformations (18+ months)

- **Integrate systems across the value chain**, connecting data from farmer → cooperative → exporter → EU buyer, automating DDS generation and submission, and creating real-time compliance dashboards.
- **Position Colombian coffee as a fully compliant premium product**, commanding higher prices through marketing that highlights sustainability narratives and agroforestry systems, origin certification with EUDR guarantees, and brand-building based on exemplary compliance.
- **Advocate before the EU for transitional provisions**, recognizing alternative documentation for producers undergoing formalization, substantially increased European investment in Colombia's land administration infrastructure (far beyond the current €86 million), a minimum five-year extension of compliance timelines for smallholders, and flexible verification mechanisms accepting cooperative/FNC attestations as interim measures.
- **Develop financial innovations**, including green bonds for coffee compliance infrastructure, impact investments focused on compliant smallholders, payments for ecosystem services for coffee agroforestry systems, and accessible climate finance mechanisms.

12 Conclusions: Navigating the Paradox Between Sustainability and Justice

The EUDR represents a turning point for Colombian coffee, revealing a fundamental contradiction between European sustainability ambitions and the realities of peasant economies in producing countries. With careful implementation, adequate financing, and genuine commitment to smallholder inclusion, Colombia could consolidate its position as a leader in traceable sustainable coffee, capture market premiums for compliant products, and advance environmental and development objectives simultaneously. The SICA system provides a structural data advantage; 98% deforestation-free plots demonstrate strong environmental performance; and multi-actor coordination through the Coffee, Forest and Climate Agreement shows institutional capacity.

However, without urgent action to close critical gaps, the EUDR threatens to exclude precisely the most vulnerable producers whom development policies seek to support. Land tenure informality affecting 52% of producers, prohibitive compliance costs (USD 105,000–215,000 for cooperatives of 500 farmers), chronic institutional weaknesses, and an impossibly compressed timeline (13 months until December 30, 2025) create a perfect storm for mass exclusion. Estimates of 280,000 coffee-farming families at high risk represent not only an economic crisis but also a threat to rural social cohesion, post-conflict peacebuilding, and the viability of historic coffee-growing communities.

The central paradox of the EUDR is that a regulation designed to promote environmental sustainability may produce social unsustainability. Colombian coffee from biodiverse agroforestry systems—environmentally and qualitatively superior—faces greater barriers than industrial sun-grown monocultures. Smallholders at or below the poverty line are expected to absorb compliance costs that large European firms describe as "negligible" (0.03–0.07% of revenues). Global South countries that have contributed minimally to global deforestation bear verification burdens, while the benefits of "deforestation-free" claims accrue to Northern brands.

The success of the EUDR in Colombia depends on five critical factors:

(1) Political will—substantial public resources and effective inter-institutional coordination; (2) FNC leadership—expanding beyond affiliated producers to reach independents and non-FNC cooperatives; (3) Private-sector responsibility—investing in suppliers rather than shifting costs, and committing to long-term relationships with fair prices that recognize the 50% gap between legal minimum wages and living wages; (4) International cooperation—massive technical and financial assistance from the EU, GIZ, FAO, and IDH to co-finance compliance infrastructure; and (5) Collective approaches—strengthening cooperatives, landscape-level solutions, and coordination through the ICO Coffee Public–Private Task Force.

The ultimate questions are those of climate justice and global equity: Is it acceptable for vulnerable producers to bear the costs of addressing consumption patterns in wealthy countries? Will the EUDR truly reduce global deforestation, or merely displace it to unregulated markets? How can regulation ensure a just transition that protects vulnerable communities rather than harms? The implementation of the EUDR in Colombia over the next 12–18 months will determine whether progressive environmental regulation can be designed and implemented in a way that advances sustainability and equity simultaneously—or whether it inevitably reproduces global hierarchies in which the costs of sustainability transitions are externalized to the Global South. For Colombia's 540,000 coffee-farming families, the stakes could not be higher.

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