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How does the current regulation of global agricultural supply chains need to be reformed to ensure long-term environmental sustainability and equitable economic participation for smallholder cocoa and cashew producers in West Africa?

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ABSTRACT

This thesis analyzes the potential reforms for value-chain regulation, financing, and governance to stimulate sustainable survival and fair economic inclusion for West Africa's cocoa and cashew smallholder farmers. Underpinned by a holistic multidisciplinary literature foundation of policy, legal regulation, value-chain, and development economics, the research is underpinned by a mixed-methods empirical design. It interweaves: a systematic investigation of recent policy and research literature from 2020 to 2025; comparative case research of Ghana, Côte d'Ivoire, and the Gambia, including documentary research of corporate forestry policies, national policy tools, and donor and NGO documents; with semi-structured research interviews of farmers, cooperatives, processors, industry interests, and policymakers.

The research results indicate three intertwined barriers that constrain sustainability and equity: structural market power combined with limited downstream processing capacity that siphons value from producers; traceability, transparency, and legal-framework shortcomings that undermine the effectiveness of due-diligence regimes (the effects of the EUDR included) and can strip farmers of policy benefits; and ongoing financing constraints at farm and processor levels that can thwart regenerative transitions. This thesis develops and tests an integrated model that combines blended-finance approaches (selective public guarantees and concessional tranches), pay-for-results contract farming, and reverse-factoring mechanisms based on farmer-based cooperatives and extended traceability. The evidence suggests that this holistic approach could reduce risk for private capital, strengthen the negotiating powers of smallholders, and enable regenerative transformations when supported by clearly defined legal due-diligence requirements and participative governance.

Contributions include a policy blueprint for harmonizing legal due diligence, investor protection and procurement incentives; an implementation framework for impact-linked finance of the type appropriate to smallholder systems; and actionable advice for stakeholders. Limitations (geographic coverage, shifting regulation) are noted and potential pathways for longitudinal analysis suggested.

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As an African proverb says: “No matter how long the night, the sun will surely rise.”

Acronyms and Abbreviations

AfCFTA: African Continental Free Trade Area

ALICO: Alliance on Living Income in Cocoa

ARS-1000: African Regional Standard for Sustainable Cocoa (continental sustainability baseline for cocoa)

ATPC: African Trade Policy Centre (UNECA)

AU: African Union

BHRRC: Business & Human Rights Resource Centre

BRCGS: Brand Reputation through Compliance Global Standards (formerly "British Retail Consortium Global Standards")

CAL: Corporate Accountability Lab

CFI: Cocoa & Forests Initiative (public–private partnership to end cocoa-driven deforestation)

CFI 2.0: Second phase of the Cocoa & Forests Initiative

CHIS: Cocoa Household Income Study (common methodology for cocoa income measurement)

CIFOR-ICRAF: Center for International Forestry Research & World Agroforestry

CMS: Cocoa Management System (Ghana's national cocoa registry/traceability system)

CSDDD: (EU) Corporate Sustainability Due Diligence Directive

DOAJ: Directory of Open Access Journals

ECOWAS: Economic Community of West African States

EFI: European Forest Institute

EPAs: (EU–Africa) Economic Partnership Agreements

EU: European Union

EUDR: EU Deforestation Regulation

FAO: Food and Agriculture Organization of the United Nations

GIZ: Deutsche Gesellschaft für Internationale Zusammenarbeit (German development agency)

GDP: Gross Domestic Product

GPS: Global Positioning System

IDH: The Sustainable Trade Initiative (IDH)

ICCO: International Cocoa Organization

ITC: International Trade Centre (UN/WTO)

JRC: Joint Research Centre (European Commission)

KIT: Royal Tropical Institute (Koninklijk Instituut voor de Tropen)

KPMG: Klynveld Peat Marwick Goerdeler (global professional services firm)

LID: Living Income Differential (US$400/ton premium introduced by Côte d'Ivoire & Ghana)

LIRP: Living Income Reference Price (price level designed to close farmers' living-income gap)

NGO: Non-Governmental Organization

OHS: Occupational Health and Safety

RA: Rainforest Alliance (voluntary sustainability standard; merged with UTZ)

RCN: Raw Cashew Nuts

SDG / SDGs: Sustainable Development Goal(s)

SNI: Sustainable Nut Initiative (industry platform for the nut sector)

SSRN: Social Science Research Network

UFLPA: Uyghur Forced Labor Prevention Act (United States)

UK: United Kingdom

UNCTAD: United Nations Conference on Trade and Development

US / USA: United States (of America)

UTZ: UTZ Certified (former certification scheme; now part of Rainforest Alliance)

VSS: Voluntary Sustainability Standards

WCF: World Cocoa Foundation

WTO: World Trade Organization

WUR: Wageningen University & Research

3S: SNI's "3S" traceability platform for nuts (used by cashew processors and buyers)

Cashew-IN: Regional cashew sector data/traceability platform under the USDA-funded PRO-Cashew project

PRO-Cashew: USDA-funded West Africa cashew sector program (a.k.a. PRO-Cashew / Prosper Cashew)

QR: Quick Response (code, used on Ghana's Cocoa Card)

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Introduction and Problem Statement

Regulatory frameworks set up in high-income consumer countries, mostly in Europe and North America, have a big impact on global supply chains for agricultural goods like cocoa and cashew nuts. These frameworks often focus on protecting the environment and making sure that goods are sourced in a way that is fair, such as stopping imports that are linked to deforestation and enforcing fair labor standards[1]. These rules are meant to reduce negative effects on the environment and society, but they often ignore the deep-seated structural inequalities in these global supply chains that hurt smallholder farmers in places like West Africa[2]. For example, production of cocoa and cashew in west Africa is ont of the most important chains in the world. Côte d'Ivoire and Ghana together make up about 60% of the world's cocoa production. Côte d'Ivoire, Nigeria, Benin, and Ghana also make a big contribution to global cashew production[3]. Even though both products are well-known and widely used, West African farmers are still economically disadvantaged and do **not** get much value from these profitable global markets. Recent research shows that West African cocoa farmers only get less than 6% of the value of the retail chocolate market, which is worth over 100 billion USD a year. Many smallholders live on less than $1 a day[4].

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[1] Akande, Y. B., Tijani, A. A., Kehinde, A. D., & Oyenpemi, L. O. (2023). Impact of compliance with EU regulations on cocoa supply chain income. Sustainable Futures, 6, 100120. https://doi.org/10.1016/j.sftr.2023.100120

Addoah, T., Lyons-White, J., Cammelli, F., Kouakou, K. M. P., Carodenuto, S., Thompson, W. J., Renier, C., & Garrett, R. D. (2025). Is the implementation of cocoa companies' forest policies on track? Evidence from Côte d'Ivoire and Ghana. Sustainable Development. Advance online publication. https://doi.org/10.1002/sd.3380

[2] Renier, C., Vandromme, M., Meyfroidt, P., Ribeiro, V., Kalischek, N., & zu Ermgassen, E. K. H. J. (2023). Transparency, traceability and deforestation in the Ivorian cocoa supply chain. Environmental Research Letters, 18(2), 024030. https://doi.org/10.1088/1748-9326/acb27d

[3] Parra-Paitán, C. A., Meyfroidt, P., Verburg, P. H., & zu Ermgassen, E. K. H. J. (2024). Deforestation and climate risk hotspots in the global cocoa value chain. Environmental Science & Policy, 158, 103796. https://doi.org/10.1016/j.envsci.2024.103796

Badji, A. C., & Baudin Sanchez, V. (2025, April 14). Building a sustainable cashew sector in West Africa through data and collaboration. Development Gateway Blog. https://developmentgateway.org/blog/building-a-sustainable-cashew-sector-in-west-africa-through-data-and-collaboration

[4] Mikolo Yobo, A. E. (2023, September). As cocoa prices soar, why are the benefits so unbalanced? CIFOR-ICRAF Forests News. https://www.cifor-icraf.org/forests-news/as-cocoa-prices-soar-why-are-the-benefits-so-unbalanced

In addition to these social sustainability issues, people around the world are still worried about the environmental and social effects of these supply chains. For example, the cocoa industry has caused a lot of deforestation, loss of biodiversity, and climate-related risks, especially in Côte d'Ivoire and Ghana. From 2000 to 2019, cocoa-driven deforestation destroyed about 2.4 million hectares of land in Côte d'Ivoire alone. This shows how important it is to put in place effective sustainability measures[5]. The cashew industry has also come under fire for moving into areas that are sensitive to the environment, which has caused habitat loss and ecological problems[6].

In response to these problems, high-income countries have put in place strict rules. The European Union Deforestation Regulation (EUDR), which went into effect in 2023, is a big step in the right direction. It establishes that cocoa and other goods that come into the EU must be able to show where they were grown without cutting down trees[7]. In addition, laws in the United States, like the Uyghur Forced Labor Prevention Act (UFLPA), set strict ethical sourcing standards to stop forced labor in supply chains[8]. These rules have good intentions, but smallholder farmers are worried about what they will mean in practice and what problems they might cause. Notably, compliance costs and technical requirements, like farm-level traceability, is major obstacles for smallholder farmers. These requirements could keep them out of important markets and make already vulnerable communities even more marginalized[9]. In fact, recent research shows that while following the rules has led to higher gross incomes for compliant farmers, a lot of smallholders still can't meet these strict requirements without help from outside sources[10].

Corporate Accountability Lab (CAL). (2023, September). "There will be no more cocoa here": How companies are extracting the West African cocoa sector to death. Corporate Accountability Lab. https://www.corporateaccountabilitylab.org/there-will-be-no-more-cocoa-here

[5] Parra-Paitán, C. A., Meyfroidt, P., Verburg, P. H., & zu Ermgassen, E. K. H. J. (2024). Deforestation and climate risk hotspots in the global cocoa value chain. Environmental Science & Policy, 158, 103796. https://doi.org/10.1016/j.envsci.2024.103796

[6] Mighty Earth. (2023, November 7). *The cashew conundrum: How global demand for superfood is driving nature loss and risking food security in Côte d'Ivoire*

[7] Zhuawu, C. (2025, April 16). *Sustainable trade at a crossroads: Sub-Saharan Africa and the EUDR*. Commonwealth Secretariat Blog.

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[9] Massey, A. (2024, November). *Sustainable cocoa requires farmer leadership and supply chain collaboration*. Fairtrade International.

[10] Akande, Y. B., Tijani, A. A., Kehinde, A. D., & Oyenpemi, L. O. (2023). Impact of compliance with EU regulations on cocoa supply chain income. Sustainable Futures, 6, 100120. https://doi.org/10.1016/j.sftr.2023.100120

Problem Statement

Despite new due diligence regimes and private sustainability standards, much of the regulatory landscape has not changed with the intent to treat global supply chains as linear, product-based vectors that merely need to be scrubbed of identified (deforestation, forced labour) risks at specific moments in time. Buyers of cocoa and cashew networks face difficulty with the transaction-at-the-border mindset versus operations founded on value chains—concentration of buyer power, futures-based pricing, fixated, indirect accumulation, asymmetrical abilities—based on economic realities of who will keep value and who will bear compliance costs. Thus, disjunction occurs where the goods can and are made to be "better" at the border, but the ongoing governance of it all continues to charge/risk from certain actors, which render them and their compliance burdens all the more worse off. In Côte d'Ivoire's cocoa industry, the historically low traceability and extremely poor deforestation footprint create composite exclusion risks where actors like easy-access actors and "de-risk" by avoiding untraced farmers. Compliance-based efforts—geolocate the farm, black-and-white records, segregation—are costly, administrative for associations without data history, inducing charge pass-through and alienation of farmers from formal supply channels. In Benin's cashew universe, the requirement of 100% in-country processing by 2024 reflects value retention and revenue generation through employment; yet working capital for compliance/traceability efforts slows timely achievement since it needs certification and aggregate data to identify levels of interest across cumulating processors and farmers groups. There is no filtering device that will allow for the processing of all without losing integrity.

Thus, the overarching problem this dissertation seeks to solve is regulatory gaps: where stipulated frameworks further supply-chain due diligence obligations, they fail to overlook power via value-chain changes, sourcing habits, and commissioned financing for large remediation efforts. Absent intentional inclusion/exclusion—inclusion by design, public-private interoperability (national traceability/regional standard); financed remediation for legal/environmental ambiguity; procurement intentions reconcilable with living income efforts—well-meaning but intentional sustainable efforts could ironically transform North-South advantages into allowances at the cost of miniscule

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Bojang, B., & Emang, D. (2024). Can cashew value chain industry improve food security? Empirical study from The Gambia. *Sustainability, 16*(15), 6607. https://doi.org/10.3390/su16156607

cocoa/cashew producers who will be discouraged from continued compliance or even participating within the social foundation of environmental awareness. This dissertation assesses these gaps and provides institutionally created levellers that blend environmental legitimacy with equal participation for all in West African cocoa and cashew networks.

Methodology

This dissertation employs a mixed-methods documentary and legal analysis to determine how international regulatory frameworks affect/influence smallholders in West Africa's cocoa/cashew supply and value chains. The two case studies are Côte d'Ivoire (cocoa) and Benin (cashew) selected purposively for their potential for analytical growth: Côte d'Ivoire is the number one producer of cocoa in the world and a key stakeholder in European due-diligence/deforestation determination; Benin is an up-and-coming cashew producer that in 2024 employed a national game-changer for domestic processing. Assessing these cases allows for cross-commodity/cross-national assessment how regulations made in high-income markets filter to smallholder-dominated realities. Empirically, this study relies solely upon secondary information assessed through operations. Activities include (i) tracing central regulations (EU Deforestation Regulation; Corporate Sustainability Due Diligence Directive; U.S. UFLPA) to analyze them; (ii) assessment of trade agreements (EU-Africa EPAs) that impede market access and compel compliance; (iii) analysis of voluntary certifications available (Fairtrade; Rainforest Alliance/UTZ) their articles governance/tracers/accessibility; and (iv) desk audit of national legal/policy frameworks in Côte d'Ivoire and Benin followed by a comparative structured analysis to outline common forces and differences. Analytical rigor includes transparent selection/criteria (cacao/cashew/legitimacy/recentness); a coded tracing (scope/mechanism/accountability/local relevance); triangulation against statutes/guidance/legal studies/institution reports. No primary data collection will be pursued.

Research Questions

Because of these important gaps, this thesis answers the main research question:

How does the current regulation of global agricultural supply chains need to be reformed to ensure long-term environmental sustainability and equitable economic participation for smallholder cocoa and cashew producers in West Africa?

Research Hypothesis

This research hypothesizes that existing international regulatory frameworks for agricultural supply chains predominantly reflect the interests and standards of high-income consumer countries. As such, these frameworks inadequately address and often exacerbate the socio-economic challenges faced by smallholder producers in West Africa, undermining their economic rights and limiting their capacity to engage in sustainable agricultural practices effectively.

Research Objectives

To effectively address the central question, the thesis pursues several interconnected research objectives:

1. Map and critically analyze existing regulatory frameworks affecting cocoa and cashew supply chains, focusing particularly on the EU's Deforestation Regulation, the EU Corporate Sustainability Due Diligence Directive, and U.S. regulations like UFLPA.
2. Evaluate the socio-economic impacts of current regulations on smallholder farmers in West Africa, identifying the main barriers to compliance and market participation.
3. Conduct detailed case studies of cocoa production in Côte d'Ivoire and cashew production in Benin, supplemented by comparative insights from secondary cases such as Brazil (cocoa) and India (cashew).
4. Develop a comprehensive understanding of the role of traceability technologies and certification schemes in supporting regulatory compliance and farmer equity.
5. Propose normative and institutional recommendations aimed at reforming existing regulatory frameworks to ensure they are inclusive, equitable, and capable of fostering genuine sustainability.

Significance of the Study

This thesis helps us better understand how to change the rules that govern global agricultural supply chains so that they really do promote fairness and sustainability. It critically analyses existing regulatory frameworks for the regulation of global value and supply chains. The research aims to give useful information and suggestions that help both protect the environment and give vulnerable farming communities more power over their own lives by pointing out gaps in both practice and institutions.

The thesis proceeds as follows: Chapter 1 provides an extensive thematic literature review, critically analyzing current scholarly debates and empirical findings related to the regulation of global agricultural supply chains. Chapter 2 details the research methodology employed, emphasizing the comparative legal-economic analysis, and documentary review. Chapters 3 and 4 present the primary case studies on Côte d'Ivoire (cocoa) and Benin (cashew), respectively, triangulating these with insights from secondary case studies. Chapter 5 synthesizes key findings and presents comprehensive policy and institutional recommendations. The final chapter concludes by summarizing the study's main contributions, limitations, and avenues for further research.

CHAPTER 1: Literature Review: Global supply and value chain regulations

In the last three years, governments have put in place strict rules for imports that connect trade in goods to standards for the environment and human rights. The EU Deforestation Regulation (EUDR), which was passed in 2023, is the EU's most important law. It says that companies that trade in important "forest-risk" goods like cocoa, coffee, palm oil, rubber, soy, cattle, and wood must do a lot of research and show that their products are "deforestation-free."

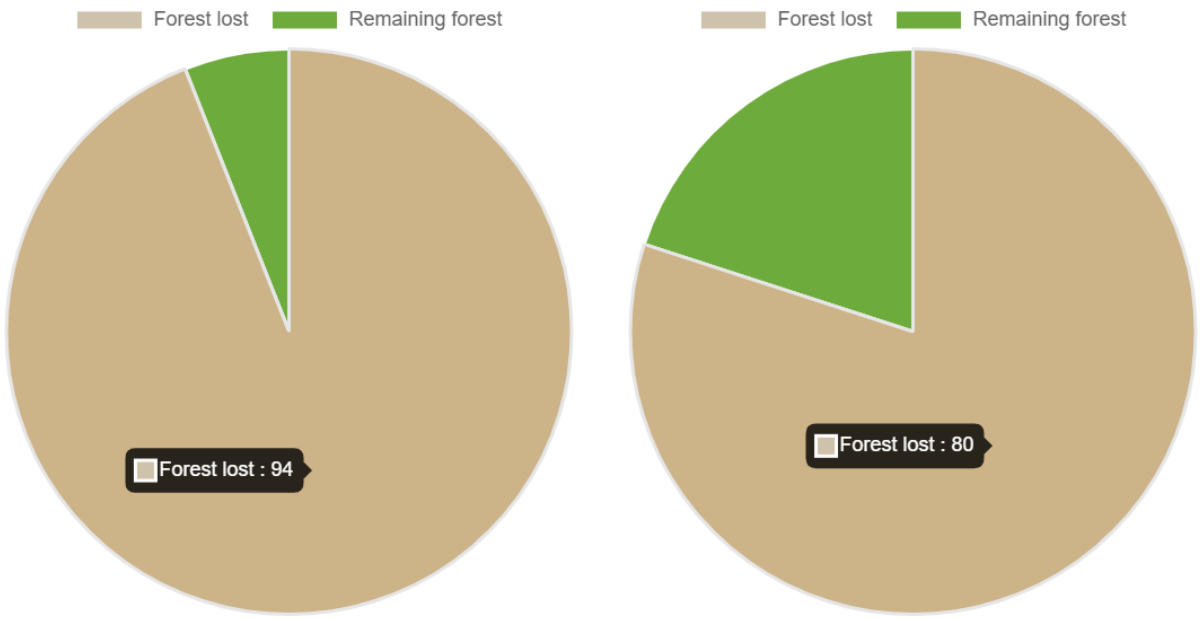
In practice, any cocoa, cashew or other covered good that comes into the EU must come from land that hasn't been cut down since December 31, 2020, and must be made in accordance with local laws. After the regulation is fully in place, not following it will completely block access to the EU market. The EUDR was supposed to go into effect by the end of 2024, but its application was pushed back to December 2025 to give companies and producer countries more time to get ready. The EUDR marks a new era of required supply-chain due diligence. Operators must gather detailed geolocation data on farms, assess risks (with EU benchmarks rating countries' deforestation risk), and reduce any non-negligible risk through measures like audits and supplier. This builds on and goes beyond earlier voluntary certification methods, making compliance with sustainability a legal requirement for entering the market. The United States has also made it harder to import goods, especially with the Uyghur Forced Labour Prevention Act (UFLPA), which was passed in 2021 and went into effect in 2022. It bans the import of goods made entirely or in part in China's Xinjiang region because they are thought to be made with forced labour. UFLPA requires businesses to find and remove any links to forced labour in their supply chains, or else they risk having their goods seized by U.S. Customs. UFLPA is an example of a larger trend in which governments use trade laws to make sure that goods are sourced ethically. The EU is also thinking about a rule that would make it illegal to sell goods made with forced labour. This would be in addition to its environmental due diligence laws (European Commission 2023). There are also new national laws coming out. For example, Germany's Supply Chain Due Diligence Act (which goes into effect in 2023) says that big companies must stop human rights and environmental violations in their global supply chains, even for things like cocoa (Federal Republic of Germany, 2021). The UK has suggested Forest Risk Commodities Regulations as part of its 2021 Environment Act. These rules would stop big businesses from using goods grown on land that has been illegally deforested. This includes beef, cocoa, palm oil, and soy. These rules will make it much

harder to keep an eye on agricultural supply chains from 2023 to 2025. Cocoa is often in the news because of its links to child labour and deforestation in tropical areas.

Implications for Cocoa and Cashew Supply Chains

The EUDR has a big effect on cocoa and cashew supply chains, especially on cocoa from West Africa. The EU buys the most cocoa from West Africa, so the new rules require proof that no new forest was cut down for the cocoa beans and that they can be traced back to the farm where they were grown. Companies that get their goods from Côte d'Ivoire, Ghana, Nigeria, or Cameroon will need exact GPS coordinates for farms and proof that they are following the rules, or they will be banned from the EU market. Some people are worried that smallholders who can't meet the requirements will lose business, but others see this as a chance to make things better.

Figure 1: ***Forest loss in Ivory Coast (left) and Ghana (right) over the last 60 years:***



1/3 of forest loss in these regions is due to cocoa production.

Source: International Wildlife Conservation

Figure 1 *illustrates deforestation in top cocoa-producing countries over the years, prompting regulatory action. It highlights forest loss in Côte d'Ivoire (left) and Ghana (right) over 60 years, with green areas indicating remaining cover.*

The EU Deforestation Regulation aims to stop more forest loss caused by trade. The EUDR's strict "deforestation-free" rule is likely to lead to more monitoring and enforcement on the ground. In fact, early evidence shows that it is changing how people think in the cocoa industry: companies in Côte d'Ivoire are now putting more money into working with forest authorities to patrol protected areas and plant new trees, which is a big change from previous years. Aarnoudse (2024), a manager at the Sustainable Trade Initiative who is in charge of the Cocoa & Forests Initiative, says that "a number of companies in Côte d'Ivoire are putting their money where their mouth is" to work with the government to protect forests. She says that the EU regulation has caused "quite a shift" in how businesses act. But there are clear gaps in these rules that need to be fixed. One worry is that they only look at environmental and labour issues and don't pay enough attention to how farmers are doing financially. Alex Assanvo, the Executive Secretary of the Ghana–Côte d'Ivoire Cocoa Initiative, says that before these laws were passed, the industry only "paid lip service" to the problems farmers had with their income. He says that "because of this regulation, today no one can escape the issue of living income and the cost or price of cocoa." The EUDR might make people talk about cocoa prices, like who has to pay for compliance, but it doesn't require better prices for farmers. As Assanvo points out, making sure cocoa is "clean" (not cut down trees) means extra costs at the farm level (for example, for mapping and monitoring). "If it doesn't bring [benefits]... we are not going to go anywhere," he says.

The EUDR and UFLPA do not do enough to address poverty or fairness in value distribution, which are both important for real sustainability. People are starting to see this lack as a weakness. Some experts worry that stricter import standards could even leave out smallholders who can't afford to comply, making inequality worse (Voice Network, 2023). These institutions claim that, without parallel economic measures like higher farmgate prices or development assistance, this could happen. The literature says that to avoid these kinds of problems, regulatory systems need to be backed up by support for farmers and ways to reduce poverty. (This will be discussed better in Section 3). Another problem is that there isn't enough coverage for commodities. The EU regulation currently only covers seven commodities and their derivatives. Cashew nuts are not one of them, even though cashew nuts are growing in West Africa and changing how land is used. During the 2024 review of the EUDR, civil society groups have asked the EU to add cashew to its list of covered products. Mighty Earth, for instance, says that the European Commission should "expand the [EUDR] to include cashew" as one of the goods that are covered. They also want the US and UK to pass laws or use existing ones

to stop the importation of cashews that are linked to damage to ecosystems[11]. These appeals show that regulatory coverage is still not complete. If this gap is not closed, it could lead to deforestation moving from regulated crops (like cocoa) to unregulated ones (like cashew). The production of cashews in West Africa has skyrocketed (Côte d'Ivoire alone went from 380,000 tonnes in 2010 to 1.2 million tonnes in 2023, which is now 40% of the world's. This growth has often taken place in savannah or forest areas. If cashew doesn't have the same due diligence requirements, it could hurt the goals of sustainable agriculture. All things considered, the new wave of supply chain regulations in 2023–2025 is a positive but incomplete step. They have the potential to spur sustainability improvements because they significantly raise the bar for social and environmental compliance, such as requiring cocoa to be retraceable and proof of zero deforestation. However, certain goods and problems are still unregulated, and existing laws "do not fully address the economic leg" of sustainability. In addition to the need for reforms centered on farmer livelihoods and value sharing (Section 3), this lays the groundwork for investigating complementary mechanisms, such as enhanced traceability systems and certification schemes, that can help meet compliance goals and potentially fill some gaps (Section 2).

1.1 Traceability Technologies and Certification Schemes

Without strong traceability systems, it would be impossible to comply with strict regulations like the EUDR and guarantee ethical sourcing at scale. The literature published between 2023 and 2025 highlights the importance of certification programs and technological tools in facilitating supply chain transparency in the cashew and cocoa industries[12]. They offer the monitoring, assurance, and "track-and-trace" data required for compliance as well as for proving sustainability to regulators and

[11] Mighty Earth. (2023, November 7). *The cashew conundrum: How global demand for superfood is driving nature loss and risking food security in Côte d'Ivoire*

[12] Beckers, A. (2023). Global value chains in EU law. *Yearbook of European Law, 42*, 322–346.

Parra-Paitán, C. A., Meyfroidt, P., Verburg, P. H., & zu Ermgassen, E. K. H. J. (2024). Deforestation and climate risk hotspots in the global cocoa value chain. *Environmental Science & Policy, 158*, 103796.

Renier, C., Vandromme, M., Meyfroidt, P., Ribeiro, V., Kalischek, N., & zu Ermgassen, E. K. H. J. (2023). Transparency, traceability and deforestation in the Ivorian cocoa supply chain. *Environmental Research Letters, 18*(2), 024030.

customers.

1.1.1 National Traceability Initiatives:

Prior to the EUDR, West African governments and business associations were making investments in traceability technologies. To fully trace cocoa beans "down to the farm," Ghana, for example, is implementing a comprehensive Cocoa Management System (CMS). Every Ghanaian cocoa farmer will have their farm boundaries mapped using GPS by the 2023–2024 cocoa season. They will also receive a digital "Cocoa Card" with a QR code that they must show to the Cocoa Board to sell cocoa. A farm is flagged and the farmer "does not qualify" to sell cocoa if it is discovered to be located within a protected forest area. This is done to enforce the no-deforestation regulations at the point of sale. Similar census and farm mapping efforts have been carried out in Côte d'Ivoire, and as part of new traceability standards, the two nations have mapped hundreds of thousands of cocoa farmers. These initiatives were started "even before any legislation came," demonstrating the region's proactive approach to supply chain transparency. Significant investments are being made by West African institutions to gain market access and credibility. According to Assanvo, demonstrating that cocoa is deforestation-free "has a cost" that includes IT systems, farm monitoring, and database management. Peers have acknowledged Ghana's CMS as a highly developed system for a producer nation. According to data from the World Cocoa Foundation's Cocoa & Forests Initiative, by the end of 2024, 83% of the direct cocoa that large corporations sourced from Ghana and 82% from Côte d'Ivoire could already be traced back to the plot or farm level. Compared to ten years ago, when beans from thousands of villages would mix without precise origin records, this indicates a striking improvement in supply chain visibility.

1.1.2 Satellite Monitoring and Geospatial Tools:

At the same time, remote sensing and satellite mapping have become essential tools for tracking changes in land use in cashew and cocoa zones. Satellite imagery is used by both public and private certification organizations to identify deforestation warnings almost instantly. Hotspots for cocoa-driven deforestation, for instance, have been mapped by programs like the World Resources Institute's Global Forest Watch and Trase. According to a UNDP report from 2025, "70% of [Ivory Coast's] illegal deforestation is related to cocoa farming." Ivory Coast has been losing forest at a rate equal to the area of New York City annually. Such information, which is frequently obtained from satellites and land-use models, aids in identifying the areas that require the greatest attention from compliance

efforts. Given that the regulation specifically calls for "collecting detailed information, including geolocation data, to show that products comply," it is likely that the EUDR will institutionalize the use of satellite verification and geolocation data. To use these tools, businesses are now collaborating with tech companies and non-governmental organizations. To map all of their sourcing farms against maps of forest cover, for example, a number of cocoa buyers have hired geospatial analytics firms (Mighty Earth, 2024). Although there are still issues with accuracy (such as differentiating between agroforestry cocoa and forest) and obtaining smallholder consent for data use, the literature indicates that satellite monitoring in conjunction with farm GPS coordinates can provide the evidence base regulators require.

1.1.3 Certification Programs: Rainforest Alliance, Fairtrade, and Others

Any evaluation of certification about West African cocoa (and by extension cashew) must begin with its comparison to the families of regulatory instruments currently exist relative to cross-border production. Internationally, the literature distinguishes between supply-chain instruments that govern product and process attributes (traceability, risk assessment, chain-of-custody) and the value-chain instruments which govern power, rents and upgrading all various levels of networks[13]. For example, public "hard law" is a supply-chain instrument—deforestation-free import mandates, corporate sustainability due-diligence frameworks creating procedural obligations on companies to identify, prevent, mitigate risks in their supply chains, binding upon them as access to empirical markets[14]. Human/labor rights laws that require disclosure fall into this realm as well; they are subject to reputational pressures via reporting but stand alone—rarely do they change purchasing decisions or create binding human rights for workers[15]. At the same time, trade and competition law, minimum price thresholds for producer countries and domestic processing requirements are value-chain instruments—they tackle entry requirements and exploit opportunities/economic pressures allowing for who takes a cut and how volatility is apportioned[16]. There is an in-between, however, which these

[13] Gibbon, P., Bair, J., & Ponte, S. (2008). Governing global value chains: An introduction. *Economy and Society, 37*(3), 315–338. https://doi.org/10.1080/03085140802172664

[14] Beckers, A. (2023). Global value chains in EU law. *Yearbook of European Law, 42,* 322–346. https://doi.org/10.1093/yel/yead008

[15] Rawling, M. (2015). Legislative regulation of global value chains to protect workers: A preliminary assessment. *The Economic and Labour Relations Review, 26*(4), 660–677. https://doi.org/10.1177/1035304615612454

[16] Gibbon, P., Bair, J., & Ponte, S. (2008). Governing global value chains: An introduction. *Economy and Society, 37*(3), 315–338. https://doi.org/10.1080/03085140802172664

hybrid private and multi-stakeholder standards (i.e. Rainforest Alliance, Fairtrade, Cocoa & Forests Initiative) essentially exist as. They assert process and product-driven constructs that parse expectations but increasingly stand as *evidence* that public law requires them—without solving for distribution questions at the core of global value chains[17].

Through such classification, certification operates as a bridge instrument. Relative to the supply-chain, schemes like Rainforest Alliance (RA) or Fairtrade act like a quasi-internal control system that generates internal registration systems for farmers over the course of two decades with auditing procedures assessed even on-farm through GPS mapping and no conversion requirements. Such systems make cocoa more *legible* to purchasers downstream and regulators as it conforms to the due-diligence procedural approach—and empirically the footprint is substantial. By 2024 RA reported certified cocoa totaling approximately 1.496 million tonnes in Côte d'Ivoire and 187 thousand tonnes in Ghana, demonstrating a significant market share of West African cocoa already being produced with traceability and auditing systems. Likewise, Fairtrade's West Africa Cocoa Program involves record-keeping workshops ranging from good agricultural practices to group governance which potentially adds to a supply chain that balances traceability with quality assurances (Fairtrade International 2023). On the value-chain side, certification has produced economic upgrading, new abilities concerning quality management, data processing and agricultural learning—but the literature warns that social upgrading does not automatically follow from compliance efforts with codes and audits[18].

Relative to this legal construct relative to public due diligence movements relative to sourcing cocoa—certification is very much situated. The EU law increasingly acknowledges third-party certification as

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Staritz, C., Tröster, B., Grumiller, J., & Maile, F. (2023). Price-setting power in global value chains: The cases of price stabilisation in the cocoa sectors in Côte d'Ivoire and Ghana. *European Journal of Development Research, 35*(4), 840–868. https://doi.org/10.1057/s41287-022-00543-z

[17] Kaplinsky, R., & Morris, M. (2018). Standards, regulation and sustainable development in a global value chain driven world. *International Journal of Technological Learning, Innovation and Development, 10*(3–4), 322–346. https://doi.org/10.1504/IJTLID.2018.10012691

Beckers, A. (2023). Global value chains in EU law. *Yearbook of European Law, 42,* 322–346. https://doi.org/10.1093/yel/yead008

[18] Kaplinsky, R., & Morris, M. (2018). Standards, regulation and sustainable development in a global value chain driven world. *International Journal of Technological Learning, Innovation and Development, 10*(3–4), 322–346. https://doi.org/10.1504/IJTLID.2018.10012691

an increasing factor in corporate awareness and deficiency mitigation but not necessarily as a safe harbor; even entities still must do their situational affirmations and credibility that prove active remediation efforts of acknowledged deficiencies instead of merely acknowledging what's found from documentation[19]. This acknowledges law's maturation from natural disaster determinations consistent with privity to modes of awareness more attuned to networked responsibility; however, it renders responsibility contested, shared and partial—exactly the issue when multi-tier production exists only invisibly to law[20]. Practically speaking this also suggests that certifying authority must legitimize their standards without assuming liability in their assessments as they must constantly update standards and data systems to present geolocation data, conversion risk assessments and diversity risk assessments in compilations compatible with buyer due diligence assessments.

Regarding environmental benefits, certification has defined content relative to certifying intent—RE for instance bolstered agroforestry and forest protections under Cocoa & Forest Initiative mandates. However, acceptance is based on capability and finance beyond the standard itself. Industry-based reporting has evidenced slow acceptance of shade-grown cocoa and low seedling survival of reforestation efforts which indicates Kaplinsky and Morris's argument that standards can tell people *what they should do* but fail to provide the means how [21]. Thus the implication is clear: certification is a necessary scaffolding for deforestation-free sourcing but without landscape leveling operations or funded mitigations for tenure related issues or taxa plots or income-less transitional gaps—it's inadequate on its own—supported by governance literature which suggests that any node-level adjustments must be made within greater meso-level institutional frameworks[22].

For social aspects, certification has implemented aspects of child-labor monitoring and remediation (e.g. Fairtrade CLMRS), grievance mechanisms and price premium opportunities yet living income

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[19] Beckers, A. (2023). *Global Value Chains in EU Law*. Yearbook of European Law, 42, 322–346.

[20] Beckers, A. (2020). *The Invisible Networks of Global Production*. *European Review of Contract Law*, 16(1), 95–117.

Rawling, M. (2015). Legislative regulation of GVCs to protect workers. *ELRR*, 26(4), 660–677.

[21] Kaplinsky, R., & Morris, M. (2018). Standards, regulation and sustainable development in a global value chain driven world. *International Journal of Technological Learning, Innovation and Development, 10*(3–4), 322–346. https://doi.org/10.1504/IJTLID.2018.10012691

[22] Gibbon, P., Bair, J., & Ponte, S. (2008). Governing global value chains: An introduction. *Economy and Society, 37*(3), 315–338. https://doi.org/10.1080/03085140802172664

gap still exists. Civil-society coalition benchmarking reveals that while the vast majority of top chocolate companies presently acknowledge living income as a right—only a minority pays any farmers at levels considered living income—and even fewer can demonstrate universal coverage throughout their entire supply (Chocolate Scorecard 2024). Rawling's assessment of incrementalization of proceduralization without redistribution rings true; standards and disclosures are everywhere but related purchasing practices (lead time, price deductions bound to compliance efforts, risk allocation) are outside binding considerations which diminishes how far premiums can flow back to farms[23]. Simultaneously, Staritz et al. explain that the quantitative industry's integration represents *trader–grinder concentration* and futures-linking for pricing suggests that producer-minimum price efforts and **living income premiums* cannot sustainably raise farm gate price[24] In simplified terms, even when using "gold standard" certification operates relative to price architecture it cannot leave.

For cashew production these dynamics translate somewhat—cautiously—relative to cashew. While cashew trends more towards food safety compliance (BRCGS) and basic entitlement for kernel sales and purchases there's a similar selection effect that first time audited costing is considered fixed costs with variable costs for recurrent audits resulting in certified access only for those whose termed capable[25]—those farms who are formalized groups equipped enough with access to shared services unless pooled finance systems exist. When buyers require multiple non-interoperable services/goods/facilities/armed then transaction costs increase resulting in fragmented compliance and larger small participants ignored—the fragmentation predicted by levels of governance absent of public/private interoperability efforts or acknowledgment systems of national traceability efforts .

In conclusion certification should be utilized as a component relative to the regulatory mix instead of comparable similar solutions. Its comparative advantage is generated verifiable process information attributable to organizational routines can be implemented into public due diligence

[23] Rawling, M. (2015). Legislative regulation of global value chains to protect workers: A preliminary assessment. *The Economic and Labour Relations Review, 26*(4), 660–677. https://doi.org/10.1177/1035304615612454

[24] Staritz, C., Tröster, B., Grumiller, J., & Maile, F. (2023). Price-setting power in global value chains: The cases of price stabilisation in the cocoa sectors in Côte d'Ivoire and Ghana. *The European Journal of Development Research, 35*(4), 840–868. https://doi.org/10.1057/s41287-022-00543-z

[25] Kaplinsky, R., & Morris, M. (2018). Standards, regulation and sustainable development in a global value chain driven world. *International Journal of Technological Learning, Innovation and Development, 10*(3–4), 322–346. https://doi.org/10.1504/IJTLID.2018.10012691

assessments (supply-chain mentality) while providing Platforms for upgrading (value-chain mentality). But certification itself cannot create binding premises to make network liability gaps close or compel changes in purchasing practices or supersede structural price power[26]. If used properly—certification can always be acknowledged as part of due-diligence findings in conjunction with financially supported onboarding/remediation efforts/engagement with national systems/intervention with jurisdictional integrations—certification can act as a slow ladder of inclusion instead of a filtering character exclusion measure. If taken by itself it makes what's championed in the literature better—for supply chains cleaner without addressing value chain inequities in situ[27].

1.1.4 Blockchain and Open Chain Models:

In addition to certification and statutory due diligence, "open" sourcing architectures championed by the industry have emerged, attempting to wire traceability, fair pricing and joint accountability into New Procurement. The most mature is Tony's Chocolonely, a cocoa company founded out of the mission to make chocolate "100% slave-free" which institutionalized its ethics through Tony's Open Chain. Standard, proprietary sustainability efforts occur within a firm; Open Chain is pre-competitive: Tony's establishes/publicizes five sourcing rules—100% traceability to farm/cooperative, paying a Living Income Reference Price (LIRP) above-market baselines, multi-year contracts, strengthening farmer cooperatives, productivity/regenerative efforts—and encourages other sourcing brands ("Mission Allies") to source under the same rules/share data/governance[28]. As of 2024, more than 15

[26] Beckers, A. (2020). The invisible networks of global production: Re-imagining the global value chain in legal research. *European Review of Contract Law, 16*(1), 95–117. https://doi.org/10.1515/ercl-2020-0005
Beckers, A. (2023). Global value chains in EU law. *Yearbook of European Law, 42,* 322–346. https://doi.org/10.1093/yel/yead008
Rawling, M. (2015). Legislative regulation of global value chains to protect workers: A preliminary assessment. *The Economic and Labour Relations Review, 26*(4), 660–677. https://doi.org/10.1177/1035304615612454

[27] Gibbon, P., Bair, J., & Ponte, S. (2008). Governing global value chains: An introduction. *Economy and Society, 37*(3), 315–338. https://doi.org/10.1080/03085140802172664
Kaplinsky, R., & Morris, M. (2018). Standards, regulation and sustainable development in a global value chain driven world. *International Journal of Technological Learning, Innovation and Development, 10*(3–4), 322–346. https://doi.org/10.1504/IJTLID.2018.10012691
Beckers, A. (2023). Global value chains in EU law. *Yearbook of European Law, 42,* 322–346. https://doi.org/10.1093/yel/yead008

[28] Tony's Chocolonely. (2023). *Open Chain – collaborative sourcing model (Impact Report).*
Tony's Chocolonely. (2023). *Waitrose joins Tony's Open Chain (April 2023 announcement).*

have joined—Waitrose, Ben & Jerry's, Aldi—but the total volume remains small (≈0.5% of West African cocoa), meaning both the open model's proof-of-concept potential/scale limitations.

Substantively, Tony's differs from most chocolate makers in three ways. First, traceability is full-chain and public-facing: each bag links back to a named cooperative and geographical locations disclosed; the platform uses shared data architecture (sometimes mixed with blockchain/pilots) to verify chain-of-custody actions by all participants instead of printers in one firm (Tony's Chocolonely, 2023). Second, pricing is explicitly linked to living-income math, not only certification premiums: Tony's claims to pay at or above the LIRP—≈≥33% over the Fairtrade baseline in the past few years—through multi-year contracts designed to stabilize cash flows and investment horizons at the cooperative level (Tony's Chocolonely, 2023). Third, governance is "open source": Tony's puts its playbook (principles/templates/data fields) publicly available and conditions participation on accepting the same rules, turning what could be a competitive advantage (proprietary compliance) into a collaborative good any ally can use[29]. Thus, Open Chain operates more like a sector utility than a marketing effort.

Regarding outcomes, Tony's reporting to date in 2023 suggests that the model can address the three pillars of concern that many due-diligence systems assess in a vacuum. Environmentally, it claims a 100% deforestation-free supply verified through on-farm mapping and risk assessment. Socially, it combines living-income payments with child-labour monitoring and remediation within partner cooperatives, claiming a vastly lower prevalence in those monitored cohorts relative to industry benchmarks. Economically, multi-year contracts of stable volume and cooperative investments (professionalizing internal control systems) support capability enhancement that typical certification struggles to underwrite on its own (Tony's Chocolonely, 2023; Early, 2024 for Reuters' review of industry efforts). While such claims must be independently validated in subsequent assessments, they show how consistent pricing + contract work + transparent data can be bundled to resolve issues that certification or technology rarely resolves separately.

From a regulator's perspective, Open Chain shows how private architecture can complement public law. For example, EU due-diligence legislation increasingly accepts third-party data as risk-assessment

[29] Tony's Chocolonely. (2023). *Open Chain – collaborative sourcing model (Impact Report).*
Tony's Chocolonely. (2023). *Waitrose joins Tony's Open Chain (April 2023 announcement).*

input while holding firms accountable for individual verification and remediation. A shared/multi-tenant architecture like Open Chain reduces portal proliferation and report duplication for compliance for cooperatives that would otherwise have to adopt multiple buyer portals that are non-interoperable[30]. It operationalizes the move from "de-risking by exclusion" to "de-risking by inclusion" because the rules require allies to onboard all members within a cooperative (map/monitor/remediate) instead of cherry-picking the easy-to-trace volumes. This corresponds with governance scholarship advocating for collective meso-level institutions—not just node-level audits—to change behaviour across the sourcing differentiated landscape (Gibbon/Bair/Ponte, 2008)[31].

That said, open models do not solve everything. As noted by Reuters, even prominent corporate efforts have faced "painfully slow" adoption of agroforestry with mixed survival rates of trees issued; capabilities and cash remain binding constraints outside data transparency (Early, 2024)[32]. Moreover, with market share relatively low for now, Open Chain becomes impactful systemically if large buyers adopt its living-income logic/long-term contracting at scale AND if regulators appreciate open/interoperable traceability as high-quality evidence under due diligence. However, if these holes are filled or elements met over time with this model coming to bear down the line, it bolsters one of the integral lessons learned during blockchain/traceability debates: traceability is as much of an enterprise social institution as it is technical stack effort. Databases/blockchain/GPS mapping/satellite monitoring have made it feasible to trace from "tree-to-bar"; what makes the traceability mean something is the ruleset around the data—paying an LIRP/locking in multi-year commitments/publishing who benefits/funding remediation when risks discovered[33].

In real terms learned from this case study for where regulatory design could encourage inclusion of scale are: (i) qualified multi-tenant traceability systems should be acknowledged as sufficiently evidence; (ii) due-diligence reports should require disclosure of onboarding/living-income contributions (not just hectares mapped); (iii) pre-competitive data-sharing should be incentivized so

[30] Beckers, A. (2023). *Global Value Chains in EU Law*. *Yearbook of European Law*, 42, 322–346.

[31] Gibbon, P., Bair, J., & Ponte, S. (2008). Governing global value chains: An introduction. *Economy and Society, 37*(3), 315–338. https://doi.org/10.1080/03085140802172664

[32] Early, C. (2024). More collaboration needed as cocoa firms battle deforestation and child labour risks. *Reuters Sustainable Business.*

[33] Tony's Chocolonely. (2023). *Open Chain – collaborative sourcing model (Impact Report).*

sustainability information doesn't siloed across proprietary portals. If supported by such rules/open-chain architecture could ensure that this type of traceability rewards deforestation-free rights-respecting producers—in cocoa now and cashew as kernel markets move toward similar transparency expectations—not just certify compliance at the border.

1.2. Socioeconomic Fairness for Small-Scale Farmers

Recent research has consistently shown that addressing the socioeconomic vulnerabilities of the smallholder farmers who grow cashew and cocoa is essential to achieving environmental sustainability in these crops. In addition to being social justice issues, poverty, low prices, precarious land tenure, and gender inequality are the main contributors to issues like child labor and deforestation. In this section, research on gender inclusion, land rights, and farmer incomes is reviewed. The disparities between the current situation and an "equitable" supply chain is highlighted, along with efforts to bridge those gaps. West African cocoa farmers continue to be among the poorest of the poor, even in the face of rising global demand and high retail prices for chocolate. The majority of households in Ghana and Côte d'Ivoire that grow cocoa fall below the World Bank's definition of poverty as of the middle of the 2020s. According to a UNDP analysis, "the majority of cocoa farmers in West Africa currently earn less than $1 per day, and many of them are women who earn only about 30 cents per day." These salaries fall well short of any benchmark for a living wage. Advocacy groups kept hammering home this point in 2023. For example, the Voice Network reported that in Ghana and Côte d'Ivoire, the average difference between the price of cocoa at the farm gate and the price at which one can make a living was still between 33 and 47 percent. Though it has been accepted in theory by industry and certifiers, the living income concept—which is defined as the amount of money required for a household to maintain a respectable standard of living—remains elusive.

The Living Income Differential (LID), which Ghana and Côte d'Ivoire jointly implemented in 2020, was one policy measure to raise farmer earnings. In order to increase farm gate prices, the LID is a premium of US$400 per tonne added to the cocoa export price. According to Assanvo, the LID in 2023 "brought a bit of serenity in the sector," demonstrating initial success in improving prices. However, further analyses show mixed results: during a supply crunch in 2023–2024, world cocoa prices spiked to over $9,000/tonne (a 163% increase over a year), allowing the governments to

significantly raise the guaranteed farm gate price-Ghana went from roughly $2.06 to $3.06 per kg, and Côte d'Ivoire saw an unprecedented one-year jump from $1.71 to $3.09 per kilogram. Farmers benefited from this, but because of their small farms and growing expenses, many were still not making a living wage, even with these higher prices. According to a 2024 study conducted by Swiss researchers and Ghana's COCOBOD, a price of $4.32/kg would be considered truly adequate in Ghana. This price is significantly higher than both the current price and Fairtrade's updated Living Income Reference Price of $2.68. Fairtrade's new reference prices were criticized by Solidaridad (2025) as being "unrealistically" low due to their assumption of yields (600–800 kg/ha), which are significantly higher than what most farmers currently achieve. In actuality, aging trees, illnesses like cocoa swollen shoot virus, and a lack of farm inputs frequently result in average yields of less than 400 kg/ha. As a result, a lot of farmers continue to be caught in a cycle of low income and low productivity. According to the literature, smallholders will continue to use coping mechanisms that compromise sustainability unless farm gate prices are drastically raised and they receive assistance to boost yields in a sustainable manner. Examples of these tactics include using child labor to lower hired labor costs or clearing new land (deforestation) to make up for declining soil fertility. Therefore, farmers' economic sustainability must be incorporated into supply chain regulations that are truly "sustainable."

Through corporate initiatives, some reforms are beginning to take shape in this direction. Nestlé's Income Accelerator is cited by Reuters (Early, 2024) as a promising model. This program, which is being piloted with 10,000 families and will scale up to 30,000 by 2026, offers cash incentives (about €100 each) to cocoa farming households in exchange for certain activities, such as keeping children in school, implementing good agricultural practices, planting shade trees (agroforestry), and diversifying sources of income. A family that completes all four earns an additional €500 annually, which is a substantial addition to their income. Importantly, in order to promote gender equity, payments are divided equally between the men and women in the household. Although an evaluation suggested greater awareness of the advantages of agroforestry, early results showed positive changes in all targeted areas (better farming practices, higher school enrollment, etc.). In 2023, Hershey and Rainforest Alliance introduced a very similar incentive program. In essence, these programs use cash transfers to improve livelihoods and encourage behavior change, thereby balancing sustainability with social goals. They are an important but voluntary attempt to bridge the gap between government actions and market prices. Whether they can reach enough farmers and be sustained at scale is the

question. Nevertheless, they represent the idea that farmers should be rewarded for implementing sustainable practices rather than punished for doing so.

1.2.1. Land Rights and Tenure Security

Another crucial equity issue is secure land tenure. Many smallholders in West Africa, particularly women and migrants, do not have official titles to the land they cultivate. Long-term sustainability investments, such as planting shade trees that landowners may later claim, may be discouraged by this insecurity, which also leaves farmers at risk of being displaced. Additionally, clearing land has been used in some areas as a tactic to assert land claims (the "land rush" dynamic in cocoa frontier areas). Land rights reforms are in progress. For instance, Ghana is taking steps to record farm plots, and Côte d'Ivoire passed a new Land Law in 2019 with the goal of formalizing land ownership. Development groups prioritized teaching farmers about their land rights in 2023. According to Solidaridad West Africa, in 2023, 1,427 stakeholders were trained on land rights and land laws throughout the region, "empowering 569 women" in Ghana alone. Following such training, Faustina Aberor, a cocoa farmer from Ghana, became a community advocate for women's land ownership rights. Women in cocoa have historically been restricted to unpaid family labor without land title, which has impacted their income and decision-making authority. This reflects a growing understanding that women's access to land is essential to equity. According to 2024 studies (such as those published by the African Development Bank), farm productivity and household welfare typically increase when women are granted secure land tenure and equal access to agricultural inputs (AfDB, 2024). The glaring 30 cents per day for female farmers is an example of how a lack of land rights can exacerbate gender income disparities. Strengthening land tenure through legal reforms, documentation of customary rights, and women's inclusion is therefore seen as a lever for better environmental stewardship and social justice (since farmers who have secure rights are more likely to invest in sustainable land management).

1.2.2 Gender Inclusion — Why It Matters for Regulation, and How Many Women Are in These Chains

Bringing a gender lens to cocoa and cashew is not an optional add-on; it is integral to understanding how regulation actually lands in producer countries. Due-diligence and traceability regimes ultimately work (or fail) through a dense web of household labour allocation, cooperative

governance, land and membership rights, and plant-floor employment. If women—who perform substantial shares of on-farm and post-harvest work and dominate specific processing roles—lack formal recognition, voice, or pay parity, rules that look neutral on paper can shift costs downward and widen exclusion in practice. In other words, gender inclusion is a mechanism through which supply-chain instruments (traceability, risk assessment) and value-chain dynamics (pricing, upgrading) translate into equitable or inequitable outcomes[34].

Empirically, women are already pivotal in both sectors—especially where local value addition is expanding. In Côte d'Ivoire's cashew industry, the recent processing scale-up generated over 18,300 jobs, 66% held by women—a striking confirmation that shelling, peeling, and grading are female-majority occupations when factories are established near production areas[35]. Across West Africa, new plants and upgrading initiatives similarly recruit women into formal jobs with stable wages and training; Solidaridad, for instance, documents support to women's producer groups and cashew/cocoa initiatives, and in Ghana specifically helped 569 women strengthen their land rights—an often-missing prerequisite for benefiting from price premia, input programs, or compensation when plots are mapped under due diligence. Case evidence from Sierra Leone's Waterloo women's association illustrates the same pathway: women's groups linked to automated cashew facilities gain formal employment and a route into factory supervision and quality roles, not just line work[36]. On farms, while reliable cross-country shares vary, women commonly undertake post-harvest tasks in cocoa (fermentation, drying, sorting) and participate in cooperative activities that are now central to traceability (membership registries, record-keeping)—precisely the routines that due-diligence statutes, certification, and buyer programs rely on[37].

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[34] Gibbon, P., Bair, J., & Ponte, S. (2008). Governing global value chains. *Economy and Society*, 37(3), 315–338.
Kaplinsky, R., & Morris, M. (2018). Standards, regulation and sustainable development in a GVC world. *IJTLID*, 10(3–4), 322–346.

[35] World Bank. (2025, April 15). *Agri-processing adds value in Côte d'Ivoire's cashew industry*.

[36] Solidaridad Network – West Africa. (2023). *Annual Report 2023* (gender and land rights initiatives). World Bank/IFC. (2025). *Agri-processing adds value in Côte d'Ivoire's cashew industry*.

[37] Kaplinsky, R., & Morris, M. (2018). Standards, regulation and sustainable development in a GVC world. *IJTLID*, 10(3–4), 322–346.
Beckers, A. (2023). *Global Value Chains in EU Law. Yearbook of European Law*, 42, 322–346.

Analyzing land, leadership, farming, and processing together is therefore essential because each node conditions regulatory effectiveness. Land and membership determine who is visible in national and buyer registries; if only men's names are recorded, women's labour becomes legally invisible, jeopardizing their access to training, premiums, and remediation[38]. Leadership and cooperative governance shape who approves data disclosures, signs contracts, and allocates benefits; without women's representation, distribution can skew away from those doing critical post-harvest work[39]. Farming and post-harvest roles determine who must adopt new practices (e.g., clean drying, bagging) to meet supplier codes—costs that fall heavily where women's labour is concentrated. And processing employment is where compliance and upgrading translate into wages, skills, and promotion; the Ivorian experience indicates that when processing expands with supportive infrastructure, women's formal employment surges, with spillovers to household welfare[40].

This lens also clarifies why some "gender-blind" compliance models underperform. Standards and due-diligence rules frequently presume that "the farmer" who receives a phone, a GPS point, or a premium is a single, male household head. In practice, phone access, time to attend trainings, and control over payments often differ by gender; absent design choices like joint membership and payment options, "cleaner" supply chains can still reproduce intra-household inequality [41]. Conversely, programs that pair compliance with women-centred capacity-building—financial literacy, data stewardship in co-ops, OHS training in factories—tend to accelerate onboarding and improve data quality, which are prerequisites for risk management under EU-style due diligence[42].

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[38] Beckers, A. (2020). *The Invisible Networks of Global Production*. *European Review of Contract Law*, 16(1), 95–117.
Beckers, A. (2023). *Global Value Chains in EU Law*. *Yearbook of European Law*, 42, 322–346.

[39] Gibbon, P., Bair, J., & Ponte, S. (2008). *Governing global value chains: An introduction*. *Economy and Society*, 37(3), 315–338.

[40] Solidaridad Network – West Africa. (2023). *Annual Report 2023* (gender and land rights initiatives). World Bank/IFC. (2025). *Agri-processing adds value in Côte d'Ivoire's cashew industry*.

[41] Rawling, M. (2015). Legislative regulation of GVCs to protect workers. *ELRR*, 26(4), 660–677.
Kaplinsky, R., & Morris, M. (2018). Standards, regulation and sustainable development in a GVC world. *IJTLID*, 10(3–4), 322–346.

[42] Beckers, A. (2023). *Global Value Chains in EU Law*. *Yearbook of European Law*, 42, 322–346.
Solidaridad Network – West Africa. (2023). *Annual Report 2023* (gender and land rights initiatives).

Two implications follow for this thesis. First, gender inclusion is a test of regulatory completeness: traceability and risk assessment only deliver equitable outcomes when women are visible in registries, eligible for payments, present in governance, and protected at work[43]. Second, the scale of women's participation means reforms can move the needle at population level: in cashew processing, a two-thirds female workforce implies that improvements in wages, safety, and promotion ladders will disproportionately raise women's incomes and household welfare; in cocoa, hundreds of women securing land and membership rights (e.g., 569 in Ghana) signals how registry and tenure reforms can unlock benefits within due-diligence architectures[44]. Accordingly, the reform agenda advanced in this study treats gender not as a stand-alone objective but as a design parameter for effective regulation: require joint registration and payment options in traceability systems; tie working-capital and onboarding support to women's inclusion metrics in cooperatives; embed OHS and promotion pathways in cashew plant compliance packages; and disclose gender-disaggregated outcomes in due diligence reports. Only then will the same instruments that verify "deforestation-free" or "child-labour-free" also lift women's incomes and voice—turning compliance into a lever for fairer, more resilient cocoa and cashew economies[45].

1.3 Value Addition and Local Processing in West Africa

Moving up the value chain and processing more of their cashew and cocoa domestically rather than exporting raw materials would benefit West African nations greatly, according to a recurring theme in

[43] Beckers, A. (2020). *The Invisible Networks of Global Production*. *European Review of Contract Law*, 16(1), 95–117.
Beckers, A. (2023). *Global Value Chains in EU Law*. *Yearbook of European Law*, 42, 322–346.
Rawling, M. (2015). Legislative regulation of GVCs to protect workers. *ELRR*, 26(4), 660–677.

[44] Solidaridad Network – West Africa. (2023). *Annual Report 2023* (gender and land rights initiatives).
World Bank/IFC. (2025). *Agri-processing adds value in Côte d'Ivoire's cashew industry*.

[45] Gibbon, P., Bair, J., & Ponte, S. (2008). *Governing global value chains: An introduction. Economy and Society*, 37(3), 315–338.
Kaplinsky, R., & Morris, M. (2018). Standards, regulation and sustainable development in a GVC world. *IJTLID*, 10(3–4), 322–346.
Beckers, A. (2023). *Global Value Chains in EU Law*. *Yearbook of European Law*, 42, 322–346.
Solidaridad Network – West Africa. (2023). *Annual Report 2023* (gender and land rights initiatives).
World Bank/IFC. (2025). *Agri-processing adds value in Côte d'Ivoire's cashew industry*.

the literature. Local value addition has the potential to raise farmers' profits from their produce, increase export earnings, and create jobs, particularly for women and young people. It is also proposed as a way to address the historical injustice in which the majority of the profits from African agricultural products go to consuming nations. This section examines current information and projects regarding the processing of cashews and cocoa in West Africa (2023–2025) and how they relate to sustainability and regulatory issues.

1.3.1 The current state of cocoa processing:

Europe processes and manufactures the high-value chocolate products, while Côte d'Ivoire and Ghana have long exported the great majority of their cocoa as raw beans. This trend was still evident in 2023, when Côte d'Ivoire only exported finished chocolate worth 2.4% of its cocoa value. Because the remainder was exported as beans or, at most, as intermediate goods (cocoa paste, butter, or powder), European and Asian businesses were able to profit from refining, branding, and retailing. This is the result of structural problems, such as high local energy and input costs, bottlenecks in the infrastructure and logistics, restricted financing options for processors, and the dominance of a small number of multinational chocolate and grinding companies that control global supply chains. But things are starting to change. With an annual grind capacity of over 620,000 MT, Côte d'Ivoire became the largest cocoa processor in the world in 2020–2021, having grown its capacity to grind cocoa at a rapid pace in recent years. 50% of all Ivorian cocoa (roughly 1.1 million MT out of ~2.2 million MT production) must be processed domestically in the upcoming years, according to a 2023 goal set by the government and industry stakeholders. Significant investments have since been made: in 2023, the Malaysian company Guan Chong constructed a new 60,000 MT grinding plant in the nation, and Cargill finished expanding its Yopougon plant, which is currently among the biggest cocoa grinding facilities in the world, for $100 million. By 2025, Côte d'Ivoire was grinding roughly 42% of its cocoa, with a goal of 50% by 2027. Ghana also intends to increase its domestic processing beyond the current level of about 25–30%. An intriguing political development is that in 2024, former President Mahama of Ghana signaled a high-level commitment to value addition by running on a platform to "surpass Côte d'Ivoire" in local cocoa processing (The Voice of Africa, 2024). The geography of cocoa production would change significantly if these goals were accomplished. The primary method of local cocoa processing is the grinding of beans into semi-finished goods (cocoa liquor, butter, and powder), which are subsequently shipped to chocolate producers. This does not fully capture the value because

the majority of chocolate production and branding still takes place overseas, but it does significantly boost domestic value retention and create industrial jobs. According to an ISS analysis from 2025, the majority of cocoa's "profits" come from processing, branding, and retail; therefore, moving even a small amount of processing to Africa could have a significant positive economic impact. Côte d'Ivoire's manufacturing GDP in 2043 might be almost $10 billion higher than it would be under normal circumstances if the country were to fully industrialize cocoa. Beyond financial gains, there is a sustainability argument: reducing poverty through increased employment and processing revenue may lessen pressure on farmers to increase their land holdings or adopt unsustainable practices (though caution is required to ensure benefits reach farmers). Demand for higher-quality beans and possibly certification is also increased by the existence of local grinding (since grinders might have to guarantee traceability for export markets). But there are still difficulties. Processing in Ghana or Ivory Coast may be less competitive than in Europe or Asia due to high local electricity and capital costs. Costs are increased by port and transportation inefficiencies. Furthermore, multinational chocolate companies may be reluctant to outsource that stage because they frequently have existing processing facilities offshore. "Large brands dominate the market, making it difficult for new players to enter," according to UNDP's West Africa hub, and these companies are "reluctant to give up their control" over the production of chocolate and cocoa. This is a structural obstacle: West Africa must either enter the market through joint ventures or daring policies due to its oligopolistic structure. It's interesting that Aka notes that the first step of processing (grinding roasted beans) is reasonably easy and doable locally[46]. "If 50% of our cocoa were processed locally, it could create thousands of jobs, increase farmers' incomes, and reduce poverty," he argues. More local processing could, in fact, allow farmer cooperatives to earn premiums for selling to local processors (who may pay a little more to secure supply) or to have a stake in downstream activities. Among the proposals are profit-sharing plans that guarantee farmers or cooperatives receive additional margins by owning shares in domestic grinding factories. Governments are also looking into disincentives for raw exports and incentives like tax breaks for processors. For instance, Ghana and Côte d'Ivoire have occasionally discussed or implemented export levies and small origin differentials to promote domestic processing.

[46] United Nations Conference on Trade and Development. (2024, October). *Chocolate price hikes: A bittersweet reason to care about climate change.* UNCTAD News. https://unctad.org/news/chocolate-price-hikes-bittersweet-reason-care-about-climate-change

1.3.2 Cashew Value Addition

West Africa has made significant strides in the cashew industry. Due to the labor-intensive nature of cashew nut processing (shelling, peeling, grading), lower-wage nations—historically, Vietnam and India—have naturally benefited from it. Some of that activity is now being captured by West African countries. From roughly 68,000 tons in 2015 to 345,000 tons in 2024, Côte d'Ivoire, the world's largest cashew producer, increased its local processing volume fivefold (worldbank.org). By 2024, processing capacity had increased to 350,000 tons annually, and the World Bank is helping to develop three new large-scale cashew processing zones. Nevertheless, with a 1.2 million-ton crop in 2023, this means about 28–30% are processed domestically, which is better than previously but falls short of the government's target of 50% processing by 2030worldbank.org. With over 18,000 new jobs created in the Ivorian cashew processing value chain—of which 66% are held by women—and an additional 12,000 jobs expected to be created when new processing zones are fully operational by 2025, the expansion has had a noticeable impact. These jobs support regional development and are frequently located in northern areas that are economically disadvantaged. One of the best examples of a public-private initiative to increase local value addition is the World Bank's Cashew Value Chain Competitiveness Project (2018–2025) in Côte d'Ivoire. It combines capacity building (training farmers in quality, connecting cooperatives to processors, introducing technologies like cashew shell byproduct utilization), infrastructure (building agro-industrial parks and feeder roads to connect farmers to processors), and policy reforms (e.g., easing business environment for processors, reviewing regulatory costs) (worldbank.org). Processing is now more feasible thanks to this all-encompassing support, which has also drawn private investments. Inza Coulibaly, a cooperative leader, is cited as saying of the change: "Our cooperative had no permanent employees at our processing unit prior to the project. Our 400 members have witnessed a notable increase in yields and income, going from 200–300 kg/ha to almost 1 ton/ha since 2023–2024. We have also created 50 stable jobs, 60% of which are for women. This demonstrates how benefits can be increased by combining processing with farmer training (in this case, improving agronomy and seedlings). Having local processors also means a more stable market and potentially higher farmgate prices for cashew farmers (less reliance on foreign buyers who might collude on pricing). Similar to this, the new cashew mini-factory in Sierra Leone in 2023 "provided a platform for efficient processing… bringing together farmers, aggregators, processors, marketers, and exporters to reduce the bottleneck of middlemen" in the cashew trade.

Farmers can earn more money per kilogram of raw cashew by cutting the chain shorter. The government and non-governmental organizations collaborated to drive that mini factory, illustrating the importance of multi-stakeholder cooperation in value addition.

1.3.3 Policy and Continental Dynamics

The African Continental Free Trade Area (AfCFTA) and other larger African development agendas are in line with the drive for local processing. West African nations could more readily export cashew kernels or processed cocoa products to other African markets without paying tariffs thanks to the AfCFTA, increasing demand for their value-added products throughout the region. For instance, Côte d'Ivoire wants to take advantage of the expanding middle class and chocolate preferences in Africa by becoming a "regional hub for cocoa processing and chocolate production, supplying local consumers and the broader African market." Small bean-to-bar businesses in Ghana and Ivory Coast, as well as Ghana's "National Chocolate Day" promotions, are examples of early attempts to develop regional chocolate brands. In addition to the roughly $10 billion cocoa bean trade, West Africa might start to take a larger share of the $100 billion chocolate retail market if it is successful. Terms of trade would significantly improve, and a more robust domestic processing industry that competes for beans could lead to higher farmgate prices. Global purchasers (such as EU importers) may find it simpler to guarantee compliance from a regulatory perspective if they source from sizable, contemporary grinding facilities in countries of origin that are able to carry out due diligence as opposed to numerous small exporters. Because it concentrates traceability and quality control in a smaller number of more sophisticated nodes (the factories) that can be certified or monitored, encouraging local processing could, in this way, support supply chain regulations. However, the literature warns that simply moving the processing location may not increase farmer incomes unless farmers are involved (through profit-sharing, cooperative ownership, or at least minimum price guarantees). In order to ensure that some of the added value reaches the producers, governments may need to impose taxes on exported semi-finished goods to pay for farmer services or raise farmgate price ratios when selling cocoa to nearby grinders.

The main conclusion is that boosting local value addition is seen as a strategy that benefits both equity and sustainability. By keeping more economic value in West Africa, it tackles the structural inequality of the supply chain. It reduces rural poverty and land pressure by generating formal employment, including for women and young people in rural areas. Additionally, as they become more essential for intermediate goods as well as raw materials, producer nations may gain more clout in the global market.

As local business owners and foreign investors establish factories, Aka (2025) is optimistic that chocolates bearing the label "Made in Ivory Coast" may be available in international markets in five to ten years. Although the obstacles mentioned (costs, market access) must be overcome in order to realize this vision, the current investments and reforms are encouraging first steps.

1.4. Institutional Reactions and Public-Private Partnerships

Supply chains must be sustainable and equitable, which calls for teamwork beyond what any one actor—whether a government agency, business, or non-governmental organization—can accomplish on their own. Numerous institutional initiatives and public-private partnerships (PPPs) have been implemented to address the complex problems in cashew and cocoa production, according to the literature published between 2023 and 2025. This section examines and assesses the efficacy of some of the most important collaborative frameworks and responses, such as national policy initiatives, multi-stakeholder platforms, and international organizations.

1.4.1 Multilateral and International Initiatives:

The International Cocoa Organization (ICCO), which has been based in Abidjan since 2017, continues to be a key intergovernmental organization that promotes communication between nations that produce and consume cocoa. The ICCO has supported research and endorsed initiatives to increase sustainability, even though its primary function is market information and development projects (direct price interventions, such as those found in the old cocoa agreements, are no longer in effect). The ICCO highlighted that the problems are "supply side challenges in West Africa – the major outlet for global cocoa" and connected them to structural and weather factors in response to rising cocoa prices and supply shortages in 2024. To help farmers with climate adaptation and diversification, the ICCO has also collaborated with UN organizations on projects. Critics point out that producing nations still lack significant collective market power (apart from the Ghana-Côte d'Ivoire bilateral LID mechanism) and that the ICCO has little enforcement authority[47].

There are numerous multilateral development organizations in operation, such as the UNDP and the World Bank (as demonstrated by the cashew competitiveness project). To create guidelines such as

[47] International Cocoa Organization (ICCO). (2023, October 3). *ICCO 50th Anniversary Declaration*.

the "Forest-Friendly Cocoa" framework, the United Nations Development Programme established a "Green Commodities Programme" in collaboration with significant chocolate companies, such as Mondelēz's Cocoa Life. In addition to calling on stakeholders to collaborate on conservation and farmer support, this document offers a roadmap for eliminating deforestation from cocoa supply chains. To encourage sustainable agroforestry landscapes, the UNDP's SCALA program (Scaling Climate Action) collaborates with the governments of Ghana and Côte d'Ivoire. These PPPs combine the resources of the private sector with the convening power of the public sector. Although the outcomes on the ground differ, they have produced strategy documents and pilot projects. Tree survival rates have been disappointingly low (~2%), and the shift to agroforestry farming has been slow, even though "millions of tree seedlings" have been distributed through the Cocoa & Forests Initiative (CFI), a joint pledge launched in 2017 by the governments of Ghana, Côte d'Ivoire, and dozens of cocoa/chocolate companies to end deforestation. In response, the CFI announced a new "landscape approach" with a $5 million fund to focus on deforestation hotspots at the jurisdictional level (such as Ghana's Asunafo-Asutifi region) at COP28 in 2023. This highlights a disconnect even well-meaning partnerships can fail if farmer incentives aren't aligned (as discussed, many farmers hesitated to plant shade trees fearing it could increase disease or reduce immediate yields). This suggests a move away from each company operating solely in its supply chain and toward more extensive cooperation that includes local communities, forest authorities, and several businesses in a particular area. Instead of focusing on isolated corporate projects, Early (2024) and Fuller (2024) contend that "approaches are needed that bring together all relevant stakeholders in a production area… to address the interconnected challenges." They point to the Dominican Republic as an example, where the Earthworm Foundation helped a group of small chocolate producers test various agroforestry models. This improved profitability and paved the way for a nationwide initiative to restore cocoa farms with shade trees. One approach PPPs are taking is this model of area-based, cooperative intervention. Producer Country Governments and Regional Initiatives: West African governments have taken the initiative to implement proactive policies at the national level. In addition to implementing pricing, including the LID, the Cocoa Board of Ghana (COCOBOD) and the Coffee-Cocoa Council of Côte d'Ivoire (CCC) also carry out mass spraying, fertilizer subsidies, and replanting programs. Launched in 2021, Ghana's new Cocoa Farmers Pension Scheme aims to give elderly farmers social safety nets. Although cashew has fewer resources than cocoa, the Cotton and Cashew Council (CCA) of Côte d'Ivoire sets farmgate prices for cashew in a similar manner and has started quality and sustainability programs. Governments have also employed bilateral diplomacy. For

example, in 2022, using their combined market share, Ghana and Côte d'Ivoire gave chocolate companies an ultimatum to pay the LID and refrain from undermining it with differential deductions. As a result, some concessions were made, and the Côte d'Ivoire–Ghana Cocoa Initiative (CIGCI), a bloc to coordinate on cocoa farmer revenue, was established. In order to support a "Economic Pact for Sustainable Cocoa (EPSC)" that would supplement the EUDR, CIGCI worked with the EU in 2023. The EPSC proposal aims to guarantee that the "economic element" (farmer compensation) is taken into consideration in addition to environmental compliance, possibly through development funding or price support. Producer governments are pushing for a more comprehensive framework where EU sustainable sourcing policies also take farmer livelihoods into account, even though specifics are still being negotiated. According to Assanvo, Europe has "the wand and power to create a future that is sustainable, equitable, and just" because of its interest in "deforestation-free" cocoa. This implies that it has an obligation to take human development metrics like "No poverty" and "Decent work" for farmers into account. The EU has established a "Observatory" to monitor cocoa sustainability, including economic issues, and its new corporate due diligence directive may require attention to human rights, including poverty wages. These examples demonstrate how moral arguments are starting to gain traction in policy discussions. At the regional level, groups such as ECOWAS and the African Cashew Alliance have served as forums for exchanging best practices and standardizing regulations (such as processing incentives or quality standards). In addition, the recently established African Sustainable Commodities Initiative (ASCI, launched in 2022) aims to promote cross-commodity learning and alignment in sustainability standards in Africa by extending the Cocoa & Forests Initiative model to additional commodities and nations.

1.4.2 Industry Coalitions:

The World Cocoa Foundation (WCF), which unites top chocolate manufacturers and traders, is one of the private sector's collaborative organizations. In addition to coordinating numerous sustainability initiatives, such as co-chairing the Cocoa & Forests Initiative, WCF has pushed for the combination of government regulations, such as the due diligence laws, with assistance for farmers. WCF openly admitted in 2024 that the initial phase of CFI "has not driven systemic change" and emphasized the necessity of incorporating the "several million smallholder farmers" who are not directly involved in company supply chains into any solutions. This acknowledgement is important because it shows that businesses understand that solely company-managed sustainability or

certification initiatives may exclude vendors who sell to local markets or through middlemen. It makes a stronger case for government intervention and group efforts to reach all farmers (for example, through rural development initiatives and national traceability systems). Another industry initiative is the Retailer Cocoa Collaboration, which was established in 2023 by a consortium of European supermarkets to exert pressure on chocolate suppliers to demand increased transparency and farmer incomes.

These horizontal partnerships indicate a move toward "pre-competitive" problems being addressed cooperatively. According to Catherine Early (2024), Tony's open-chain model is essentially enforcing a level of "pre-competitive collaboration" that is highly practical because businesses that would typically compete are willing to source jointly under common standards.

1.4.3 Public–Private Successes and Shortcomings

Public–Private Partnerships (PPPs) have demonstrated success in a variety of fields, including community development (many public–NGO programs have built schools, VSLA microfinance groups, etc., improving resilience) and cashew (donors, government, and investors collaborated to build processing zones and created thousands of jobs as described). As an additional illustration, the government of Ghana took action to safeguard farmers' lands as a result of Solidaridad and TrustAfrica's campaign against illicit mining encroachment on cocoa lands. This demonstrates the effectiveness of advocacy when farmers and civil society make a unified case to decision-makers. However, some collaborations have had trouble growing and being enforced. For example, the Harkin-Engel Protocol, a public-private agreement signed in 2001 to end the worst types of child labor in cocoa, has missed numerous deadlines over the course of 20 years. According to the 2020s literature, PPPs should be made more accountable by enforcing targets, increasing funding, and incorporating farmers' organizations in the planning and management of projects (to guarantee that their interests are prioritized). One recurring observation is that coordination is still difficult. Companies occasionally "ploughed their own furrows" with independent projects even under CFI, and cooperation amongst the 35 signatory companies was slow. Although it is difficult, dismantling these silos is essential for systemic change. Lastly, coherence in government policy is essential. Conflicting signals may arise, for instance, if a government promises to stop deforestation while simultaneously encouraging the growth of cocoa for economic purposes. Ghana and Ivory Coast, on the other hand, have made progress in this area: both have National Cocoa Plans that prioritize the rehabilitation of old farms over the expansion of land, and both have participated in REDD+

agreements (Ivory Coast received a $35 million result-based payment from the World Bank in 2024 for reducing deforestation, largely through forest policy actions in cocoa regions). This kind of alignment of agricultural and environmental policy is part of the institutional reform required to support sustainable supply chains.

In conclusion, the multifaceted literature illustrates that no single policy or stakeholder group can achieve sustainability and equity alone. It requires a "all hands-on deck" approach: regulation to set the rules of the game, technology and certifications to implement them, economic measures to ensure farmers benefit, local processing to shift value balances, and partnerships at all levels to coordinate support. The current supply chain regulations, while groundbreaking, fall short on their own – they must be buttressed by these complementary efforts that directly target farmer welfare and on-the-ground change. The hypothesis emerging from this review is that only by integrating environmental mandates with social and economic reforms – for instance, coupling deforestation-free requirements with price incentives and development programs for farmers – will the cocoa and cashew sectors truly become sustainable and equitable. The literature points to the need for "reform frameworks" that consider the entire system, from international trade laws down to village-level practices, and leverage both market forces and public goods to drive change. This provides a foundation for the thesis to propose how global supply chain regulation can be reimagined or reformed to deliver on the twin goals of sustainability (forest protection, no labor exploitation) and equity (fair income, inclusion) for West African smallholders in these vital industries.

Chapter 2: Methodology

This chapter clarifies the approaches used to study the governance of global supply chains of agricultural products, and it centers on cocoa and cashew crops from West Africa. Since the thesis both asks about the effectiveness of the current laws in protecting forests and communities and seeks possible paths of reform, I developed a methodology that allows me to investigate the law "on the books," the policies shaping the economy of preference of the industry, and the private standards operating in parallel with public legislation. Accordingly, I use a mixed-method methodology combining three mutually supportive components: a documentary and legal reading of essential legislation; a reading of those trade agreements specifying market access; and a reading of key certification schemes. During this work, I take a legal-political economy approach where the

interpretation of legislation is not only about textual entities but about mechanisms that distribute power, risks, and rewards within and between geographies and actors. This methodology is defined by rigor, systematic implementation, and reproducibility and is based only on secondary sources.

To guide the reader, I take a step-wise approach. First, I clarify the mixed-method design and the reasons behind my choice of selecting Côte d'Ivoire (cocoa) and Benin (cashew) as my main case studies. Next, I outline the processes utilized for carrying out the documentary and legal analysis, review of the trade agreements, and certification scheme assessment. Also, I outline the further research tools used, namely a desk review of national policy and a structured comparative study, before listing the limitations and ethical considerations. At each point, I clarify step-by-step the analytical methodology used, sources of data used, criteria used by the sources selected and the framework used which steered their analysis.

2.1. Mixed-Method Design and Case Selection

A mixed-methods approach was used to capture the intricate, multifarious nature of supply-chain governance. The use of document analysis integrated with systematic comparison of a range of cases and instruments allows insights into the development of rules and their relationships and expressions within specific contexts. Triangulation serves to enhance the strength of the study since varying viewpoints confirm one another, and at the same time enhances generalizability of findings since patterns registered in one instrument or country can be tested against those registered elsewhere. I choose two central country–commodity pairs—the cocoa industry of Côte d'Ivoire and the cashew industry of Benin—because of their capacity to instantiate the dynamics the thesis is seeking to understand. Côte d'Ivoire is the world's leading producer of cocoa and the center of European deforestation-driven regulation; it therefore offers the ideal environment within which to test the dynamics of the intersection of the "hard law" on deforestation and national system and supply-chain practice. Benin is a rapidly growing cashew export country with shifting regulatory/institutional arrangements; it offers a comparison-rich view of a commodity neither (yet) chiefly aimed at by some of the global norms but considerably inscribed within sustainability discourse. Where it refined contrasts or confirmed trends, these central cases were complemented by texts on cocoa in Brazil and cashew in India. This type of case choice allowed both cross-sectoral (cocoa and cashew) and cross-nation learning (West Africa and other producing areas).

2.2. Documentary and Legal Analysis: Systematic and Detailed Study of the Rules

Analytical approach: The law of the investigation unfolds by virtue of a structured documentary study. I consult regulatory texts, official instructions, and institutional reports issued by the European Union, the United States, and other African governments so as to understand not only the substance of the rules but also the desired mechanisms of their application. I raise four questions about each regulatory tool: What are its goals? How is it meant to operate? Who is responsible, and how? And, additionally, how and whether it is related to the producer countries' realities?

Data sources and the reasoning underlying their selection: At the first level of data sources, I drew on primary EU tools—with particular reference to the Corporate Sustainability Due Diligence Directive (CSDDD) and the European Union Deforestation Regulation (EUDR). To include the U.S. views on labor due diligence, I reviewed the Uyghum Forced Labor Prevention Act (UFLPA) and U.S. customs and enforcement guides delineating how officials enforce the law. Seeing the role of interpretation, communications of the European Commission and related implementing instructions were invoked, together with commentaries of a legal kind and policy works put out by CIFOR-ICRAF, IDH, and ClientEarth, and complemented by recent academic sources. I developed clear selection criteria: sources had to be directly related to cocoa and/or cashew supply chains; have legal or authoritative guidance status; match the date range of 2023-2025 (to remain relevant); and offer enough information to assess implementation or compliance intention.

How I analyzed the legal material: I used each instrument along four dimensions. First, scope and objectives: I wanted to be sure that the rule aims to protect the environment, labor rights, human rights due diligence, or a combination of these two elements. Second, the mechanisms for implementation: does it require traceability (and at what level of granularity), specify reporting obligations, or provide for sanctions and risk mitigation measures? Third, for accountability measures: what remedies, appeals, and monitoring provisions exist, and who can trigger them? Fourth, local relevance: does the text recognize the needs and capacities of producing countries—for example, through phased timetables, cooperation mechanisms, or technical assistance—or does it presuppose compliance without taking context into account? Adapting along these dimensions allowed me to compare instruments with comparable data and identify where regulatory intent matches (or does not match) practical feasibility in West African supply chains.

2.3. Trade Agreements Review: Viewing How Market Rules Contribute to Compliance Incentives

Public governance does not exist autonomously; commercial agreements prescribe the actors allowed to sell certain products, their points of sale and the terms of their sale. Accordingly, I studied the EU–Africa Economic Partnership Agreements (EPAs)'s political and legal system and related multilateral tools to analyze the interaction between market access incentives and sustainability obligations. I studied the ECOWAS–EU interim EPA and its annexes of a technical character, WTO agriculture notifications and disciplines pertinent to market access and domestic support, and AU–EU partnership agendas that provide political direction. Interpreting and putting these texts in context entailed use of analytical UNCTAD, FAO, and African Trade Policy Centre (ATPC) reports. Choice criteria were the selfsame used on legal instruments: documents needed to specify agricultural trade and sustainability by name, be relevant to export of cocoa or cashews, and include national implementation or enforcement of a case-specific type. I categorized the agreements along three dimensions. First is market access and tariff provisions: what are the preferences or limitations applicable to agricultural products of concern to West Africa, and how would these impact sourcing and processing strategies? Second is sustainability rhetoric and legal substance: are environmental and labor commitments binding and justiciable or aspirational and politically worded? Third is institutional oversight mechanisms: what are the joint committees or monitoring boards that exist, what are they monitoring, and what is their dispute resolution procedure? This framework allowed me to judge not just whether sustainability is mentioned in the text but whether it is enforceable and likely to matter, especially where governance asymmetries may otherwise push producer-country concerns aside.

2.4. Evaluation of Certification Schemes: Reading Private Standards as "Soft Law"

Analytical framework: Because private standards influence everyday practice at farms and purchasing centers, I studied major voluntary sustainability schemes (VSS)—i.e., Fair Trade, UTZ, and Rainforest Alliance—as illustrations of "soft law" aimed at supplementing public regulation. It was not about reopening the discussion of theory and certification but rather about grasping the dynamic between scheme type, governance, and control and public due diligence requirements and realities of smallholders' contexts in West Africa. Official criteria and guidelines were reviewed to identify requirements and processes for compliance assessment. Moreover, recent impact assessments

and scorecards, e.g., the Cocoa Barometer (2023) and the Chocolate Scorecard (2024), were scrutinized. Peer-reviewed research, especially that from Wageningen University and CIFOR-ICRAF, and independent evaluations and knowledge papers by IDH, GIZ, Mighty Earth, and Solidaridad were reviewed. For reasons of staying up-to-date and being able to compare results, I only considered sources where cocoa and/or cashew supply chains of West Africa were discussed, where traceability was recorded along with advantages (or disadvantages) of producers, and where global mandates were expressly engaged with (e.g., compliance with EUDR traceability requirements).

The approach used to assess the schemes was based on four central questions. Firstly, related to traceability and monitoring ability: to what extent can the scheme consistently trace goods back to the farm and detect problems? Secondly, related to the sharing of advantages and disadvantages: do producers receive price premiums, technical support, or access to markets that justify their participation and what burdens (such as costs, audits, or forms) may potentially exclude poorer farmers? Thirdly, related to governance and redress: who takes part in decision-making, how do the standards get updated, and what redress options are available to producers? Fourthly, related to scale and availability: are industry segments made up largely of smallholders in West Africa capable of joining on a large scale or do structural limitations inhibit this joining? Reviewing the schemes within this framework facilitated comparison of where private standards are consistent with public interests (such as by the provision of geolocation information) and where further public intervention is needed (for example, to prevent exclusion of the lowest-resourced producers).

2.5. Supplemental Research Approaches: From Documentation Through Diagnosis Through Design

To ground the analysis in country realities, I undertook a systematic desk review of national laws and legislation, policy texts and policy plans, implementation plans and industry reports of Benin and Côte d'Ivoire. This exercise traced where national norms are aligned with or diverge from global norms and where capacity is strongest (such as at the availability of geodata at the farm level or whether national traceability tools are operational at the national level).

Then, using a comparative analysis of the two cases, I was able to identify sector-specific problems (such as the perennial deforestation of cocoa and its complex buyer networks versus the rapid growth and dynamic processing environment of cashew) and derive underlying principles of successful regulation (such as the necessity of robust traceability and the need for inclusion protection).

Finally, based on the resulting patterns of the three strands of analysis, I developed a proposed reform framework. This framework is institutional and normative; it identifies the ways public regulation, trade architecture, and private specifications can better accommodate each other so that requirements of sustainability are clear and enforceable, yet at the same time meet the requirements and limitations of producer countries. It is not a hypothetical improvement but a synthesis resulting directly from the documentary evidence gathered and analyzed within this chapter.

2.6. Signposting the Logic: From Choice of Sources to Synthesis

Since documentary analysis rather than interview or survey is used for research, it is essential that transparency about "what was included" and "how it was interpreted" is maintained. In all sections, I employed consistent selection criteria, namely relevance to cocoa or cashew, legal authority or recognised policy status, timeliness, and adequate implementation detail. Further, I employed common analytical dimensions—that is, purpose, mechanism, accountability, and local significance for legislation; market access, sustainability considerations, and oversight for trade; and traceability, cost-benefit analysis, governance, and scalability for certification. These common templates enable meaningful comparison: instruments can occupy the same grid and immediate visualisation is obtained of points of convergence and divergence. This final synthesis of this chapter (itself drawn on directly in the following chapters by tables and narrative) is the product of this structured comparison.

2.7. Limitations and Ethical Considerations: Capabilities and Constraints of This Methodology

The documentary nature of the research brings obvious advantages—the legal accuracy, policy scope, and replicability—but constraints that I recognize. Foremost, the study lacks primary data gathering. There are thus no interviews with farmers or observations of fields that can complement or challenge what official sources and evaluations describe. This makes me sensitive to publication bias (reports available publicly can exaggerate or underestimate impacts) and to institutional viewpoint (documents tend to mirror the priorities of the issuing institutions). I minimized these risks first by triangulating on multiple sources (statutes and directives and their consequential; guidance documents; academic scholarship; NGO evaluations; and multilateral analyses); and second by organizing materials against clear criteria, making my interpretive moves clear. The regulatory environment is defined by its fluidity. Documents such as the EUDR and the CSDDD have staged implementation timetables and ever-evolving guidelines; therefore, the study covers a dynamic topic. Where possible,

I have accessed the most up-to-date official releases and integrated findings at the most comparable points of the policy cycle.

From a moral perspective, the paper upholds academic integrity at all times. All sources are made known with candor; claims are supported by the referenced papers; and, where the evidence is inconclusive or absent, I specifically state this. More broadly, I actively seek to integrate producer country viewpoints—by always asking whether the tools cover cooperative clauses, following up on a matter of feasibility and access issues, and considering whether governance mechanisms give voice to those affected most by obligations of compliance.

In short, this proposed methodology seeks to clarify a complex regulatory system in a manner that is both methodologically sound and pragmatically useful. Through an integrated methodology of careful reading of legislative texts, structural reading of trade agreements, and empirical assessment of certification schemes—all of which are placed within individual country desk reviews and comparative framework—I can evaluate the ways in which regulations are designed to work, their interactions with market incentives, and their likely effect on industries where smallholders are the main player within West Africa. This foregoing narrative lays the ground-work for the forthcoming chapters of case study where this methodological approach is used within the cocoa sector of Côte d'Ivoire and the cashew sector of Benin and where robust, evidence-based reform recommendations are extracted.

Chapter 3: Internationally Regulated Cocoa in Côte d'Ivoire: An Experience among Smallholders and Comparison to Brazil

This chapter examines how contemporary international regulatory regimes shape the livelihoods, decision-making, and market participation of smallholder cocoa producers in Côte d'Ivoire and draws comparative lessons from the cocoa trades in Brazil. I focus on four interrelated elements: (1) compliance challenges faced by smallholders in meeting new due-diligence requirements, especially those concerning deforestation-free sourcing and traceability; (2) socio-economic effects that these regimes have on farmers' revenues, bargaining strength, and vulnerability to risk; (3) market participation barriers arising out of interactions between public rules and Private Governance Mechanisms; and (4) lessons drawn from Brazil's regulatory and market landscape that resonate and diverge. Across these sections, I assess the thesis hypothesis that existing regulations—which

overwhelmingly were crafted for high-income consumer markets—are too poor a reflection of reality faced by producing nations and serve to entrench inequities rather than to relieve them. Evidence gathered in this inquiry supports that hypothesis, but concludes further reform possibilities exist which could synchronize environmental sustainability and fair participation.

3.1. Regulatory Environment and Compliance Needs in Côte d'Ivoire

Côte d'Ivoire is at the center of the world's cocoa economy: it has been the largest producer for decades, and the largest buyer is still the European Union against this background, the EU Deforestation Regulation (EUDR) adopted in 2023 has reinvented compliance benchmarks by having companies prove that cocoa entering the EU market does not cause deforestation and was produced consistent with applicable local law. This requires plot-level geolocation of parcels and a process of risk assessment and mitigation before import[48]. Though full implementation was put off until late 2025, it has already propelled a fast rollout of traceability infrastructures and geospatial tracking throughout Ivorian cocoa producing areas[49]. Two aspects of the Ivorian supply base complicate compliance. First, a large proportion of cocoa has traditionally flowed through indirect or non-transparent channels, in which beans are centralized by intermediaries prior to exporting–undermining lot-level origin. Just 44% of Ivorian shipments in 2019 could be traced back to a cooperative or origin, while 56% were "untraced" including some 24% through indirect sourcing and another 32% marketed by exporters without information on their suppliers[50]. Second, environmental baseline is difficult: a spatial account of cocoa-linked land-use change calculates ~2.4 million ha of cocoa-associated deforestation between 2000 and 2019 in Côte d'Ivoire, including expansion to and around surviving forest fragments. These two realities–low past traceability and high deforestation pressure–increased the threshold for EUDR compliance and heighten a chance that smallholders, especially those who market indirectly, might be left behind if systems aren't developed with inclusion guarantees.

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[48]Zhuawu, C. (2025, April 16). *Sustainable trade at a crossroads: Sub-Saharan Africa and the EUDR*. Commonwealth Secretariat Blog.
ClientEarth, & Taylor Crabbe. (2023). *New EU and UK regulations on deforestation-free commodities: A lever for change in the cocoa sector in Ghana*.

[49] Lang, J. (2024, June). 'Hybrid' mapping method key to EUDR cocoa compliance, study finds. *Mongabay*.

World Cocoa Foundation. (2023). *Cocoa & Forests Initiative — Ghana 2023 progress report.*

[50] Renier, C., Vandromme, M., Meyfroidt, P., Ribeiro, V., Kalischek, N., & zu Ermgassen, E. K. H. J. (2023). Transparency, traceability and deforestation in the Ivorian cocoa supply chain. *Environmental Research Letters, 18*(2), 024030.

Private efforts in governance shape the compliance landscape, too. Voluntary corporate commitments make up a minority of tradeable cocoa—it covers about 25% around the globe—the balance of the volume stays outside corporate zero-deforestation or livelihood commitments[51]. Where firms have "Forest-focused Supply Chain Policies," roll-out has mainly been constrained: efforts remain centralized on direct supplies, remain legal-compliance-driven rather than landscape-based outcomes, and rarely co-design solutions with farmers[52]. Certification schemes—Fairtrade and Rainforest Alliance—are complementary scaffolding to due diligence but can only partially meet EUDR-level geolocation and mitigation-of-risks requirements, subject to cooperative capacity and buyer engagement[53]. In concert, the new system requires smallholders (and groups) to (i) map farms accurately; (ii) maintain up-to-date records of membership and transactions; (iii) demonstrate legality (of land and labour) and non-conversion since the cut-off forest; and (iv) trade through conduits keeping records of identity and geodata. These all require costs, coordination, and abilities unevenly distributed within Ivorian cocoa communities[54]. Whilst domestic traceability schemes still mature, change is no minor issue amongst groups of farmers who conventionally transacted in informal market linkages.

3.2. Challenges to Compliance among Smallholders

EUDR's geolocation clause presents a technical hurdle for smallholders and cooperatives. Most cooperatives lack hardware, software, or trained personnel to create accurate polygon maps, update them as farms change, and integrate geodata in transaction systems capable of meeting buyer due-diligence demands[55]. Pilots demonstrate evidence that a "hybrid mapping" approach—that lowers

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[51] Parra-Paitán, C. A., zu Ermgassen, E. K. H. J., Meyfroidt, P., & Verburg, P. H. (2023). Large gaps in voluntary sustainability commitments covering the global cocoa trade. *Global Environmental Change, 81*, 102696. https://doi.org/10.1016/j.gloenvcha.2023.102696

[52] Addoah, T., Lyons-White, J., Cammelli, F., Kouakou, K. M. P., Carodenuto, S., Thompson, W. J., Renier, C., & Garrett, R. D. (2025). *Is the implementation of cocoa companies' forest policies on track to effectively and equitably address deforestation in West Africa? Sustainable Development, 33*(4), 5197–5213. https://doi.org/10.1002/sd.3380

[53]World Cocoa Foundation. (2023). *Cocoa & Forests Initiative — Ghana 2023 progress report.*
Be Slavery Free, & Mighty Earth. (2024). *Chocolate Scorecard 2024: Living income & human rights findings.*
[54] Massey, A. (2024, November). *Sustainable cocoa requires farmer leadership and supply chain collaboration.* Fairtrade International. https://www.fairtrade.net/news/sustainable-cocoa-requires-farmer-leadership-and-supply-chain-collaboration
Lang, J. (2024, June). 'Hybrid' mapping method key to EUDR cocoa compliance, study finds. *Mongabay*

[55] Massey, A. (2024, November). *Sustainable cocoa requires farmer leadership and supply chain collaboration.* Fairtrade International. https://www.fairtrade.net/news/sustainable-cocoa-requires-farmer-leadership-and-supply-chain-collaboration

high-resolution satellites to ground level with in-situ GPS mapping and cooperatives' records—increases accuracy while reducing false negatives/positives to reach EUDR compliance but still requires further investment, training, and data governance arrangements protecting farmer interests[56]. Where privately developed traceability systems risk fragmentation: a range of buyers can apply different platforms and data standards, increasing compliance expenditure for cooperatives selling to two or more partners[57]. On the other hand, nationally developed systems hold out the prospect of scale and standardization but need to gain buyer approval and mesh corporate due-diligence processes. Meanwhile, cooperatives can be subject to double reporting—feeding two sets of systems—the national system and buyer system(s)—placing administrative burdens.

Compliance requirements entail monetary and opportunity costs like compensating enumerators, purchasing GPS units, staffing data management personnel, and adjusting collection practices to ensure traceability. Without special financing, these costs can be forwarded along the supply chain, reducing net incomes to farmers. There is a real risk buyers will narrow sourcing from "low-risk" producers—the better-capitalized cooperatives with better data systems—while avoiding producers in isolated or deforestation hotspots who could not easily prove compliance[58]. That creates a dilemma: those who most require predictable market access may be least able to meet new due-diligence requirements in the near term. "Legal production" in EUDR encompasses compliance between producer-country laws regarding land, environment, and employment. For Côte d'Ivoire, land tenure continues to be tricky: many farmers work on customary schemes without fully formalized title, while protected area limits have shifted historically. Transecting classified forests or buffer strips, where-ever farms do this, sharp insecurity about selling cocoa and available routes to remediation[59] afflict farmers. Current corporate policies primarily seek to keep "illegally" grown plots out of supply chain networks but remediation principles—who calls out tenure clarification, what to do about households living adjacent to or within protected areas, how landscape restoration financing goes—

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[56] Lang, J. (2024, June). 'Hybrid' mapping method key to EUDR cocoa compliance, study finds. *Mongabay*

[57] World Cocoa Foundation. (2023). *Cocoa & Forests Initiative — Ghana 2023 progress report.*

[58] Zhuawu, C. (2025, April 16). *Sustainable trade at a crossroads: Sub-Saharan Africa and the EUDR.* Commonwealth Secretariat Blog.
ClientEarth, & Taylor Crabbe. (2023). *New EU and UK regulations on deforestation-free commodities: A lever for change in the cocoa sector in Ghana.*

[59] World Cocoa Foundation. (2023). *Cocoa & Forests Initiative — Ghana 2023 progress report.*
ClientEarth, & Taylor Crabbe. (2023). *New EU and UK regulations on deforestation-free commodities: A lever for change in the cocoa sector in Ghana.*

are uneven[60]. With neither clear joint-funded remediation within sight, compliance risks become household livelihood risks.

3.3. Socio-Economic Impacts of Regulatory

Regulation has, on occasion, indirect positive effects on incomes. Survey-based evidence in Nigeria finds compliance with EU regulations was correlated with ~61% gross income increases among cocoa producers due to quality enhancements and market access[61]. In Côte d'Ivoire and Ghana, the cocoa futures climbing to record highs in 2023–2024 meant large rises in farmgate prices, closing gaps in incomes in the short term[62]. But such price windfalls are volatile and weather-related; they replace neither structural arrangement to ensure living incomes[63]. Indeed, sector-wide reviews of accountability reveal a consistent "implementation gap": while 83% of large cocoa companies in the mainstream publicly affirm living income is a right, only a third or so pay any producers a living income and only a few can document paying all producers at that level[64]. This then emphasizes that environmental due-diligence laws, designed as they stand not to provide fair pay but to promote environmental due diligence, need complementary actions if poverty in incomes—one cause of forest

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[60] Addoah, T., Lyons-White, J., Cammelli, F., Kouakou, K. M. P., Carodenuto, S., Thompson, W. J., Renier, C., & Garrett, R. D. (2025). *Is the implementation of cocoa companies' forest policies on track to effectively and equitably address deforestation in West Africa? Sustainable Development, 33*(4), 5197–5213. https://doi.org/10.1002/sd.3380

World Cocoa Foundation. (2023). *Cocoa & Forests Initiative — Ghana 2023 progress report.*

[61] Akande, Y. B., Tijani, A. A., Kehinde, A. D., & Oyenpemi, L. O. (2023). Impact of compliance with EU regulations on cocoa supply chain income. *Sustainable Futures, 6,* 100120. https://doi.org/10.1016/j.sftr.2023.100120

[62] United Nations Conference on Trade and Development. (2024, October). *Chocolate price hikes: A bittersweet reason to care about climate change.* UNCTAD News. https://unctad.org/news/chocolate-price-hikes-bittersweet-reason-care-about-climate-change
Early, C. (2024*). More collaboration needed as cocoa firms battle deforestation and child labour risks*. Reuters Sustainable Business.

[63] United Nations Conference on Trade and Development. (2024, October). *Chocolate price hikes: A bittersweet reason to care about climate change.* UNCTAD News. https://unctad.org/news/chocolate-price-hikes-bittersweet-reason-care-about-climate-change

[64] Be Slavery Free, & Mighty Earth. (2024). *Chocolate Scorecard 2024: Living income & human rights findings.*

destruction and child labor—is to be addressed stably[65]. Some buyers are experimenting with direct economic instruments oriented toward alignment of social and environmental targets. Nestlé's Income Accelerator provides conditional cash rewards tied to education, agroforestry, and farm practice uptake; an external evaluation reported around 15% spikes in income and positive behavioral changes in the first phase, opening to a planned expansion due to reach tens of thousands of families[66]. Tony's Open Chain requires full traceability, long-term purchasing contracts, and a living-income price reference; while the model does not yet scale beyond a small level, it demonstrates that transparent-based sourcing on a premium-based approach can be widely applied across brands[67]. Such instruments represent realistic ways to integrate socio-economic objectives within compliance regimes but remain voluntary and irregular across buyers. Absent systemic requirements or common financing arrangements, coverage will likely remain patchy—with preference given to farmers who are part of "progressive" buyers while others might be left behind[68]. Cooperatives provide the key turning point to compliance assurance by collecting data, brokering training, and ensuring relationships between buyers. Initiatives improving cooperative capacity—e.g., those involving data management, agronomy, and internal control systems—are not only improving compliance chances but can potentially

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[65] Corporate Accountability Lab. (2023). *"There will be no more cocoa here": How companies are extracting the West African cocoa sector to death.*

Early, C. (2024*). More collaboration needed as cocoa firms battle deforestation and child labour risks*. Reuters Sustainable Business.

[66] Nestlé. (2024). *Nestlé Cocoa Plan – Income Accelerator Program: Results and expansion.*

Early, C. (2024*). More collaboration needed as cocoa firms battle deforestation and child labour risks*. Reuters Sustainable Business.

[67] Tony's Chocolonely. (2023). *Open Chain – Collaborative Sourcing Model (Impact Report).*

Early, C. (2024*). More collaboration needed as cocoa firms battle deforestation and child labour risks*. Reuters Sustainable Business.

[68] Be Slavery Free, & Mighty Earth. (2024). *Chocolate Scorecard 2024: Living income & human rights findings.*
Parra-Paitán, C. A., zu Ermgassen, E. K. H. J., Meyfroidt, P., & Verburg, P. H. (2023). Large gaps in voluntary sustainability commitments covering the global cocoa trade. *Global Environmental Change, 81*, 102696. https://doi.org/10.1016/j.gloenvcha.2023.102696

reinforce negotiation power and inclusive practices[69]. Gender dynamics matter in particular: women often have fewer titles to land and faces barriers to leadership positions, potentially limiting their appearance within traceability databases and limiting premiums or services[70]. In cases where compliance arrangements do not use explicit provisions for common household contributions or require gender-parity engagement, new benefits can reinforce existing inequalities[71]. By contrast, arrangements designing payment structures involving both partners—as some cash-transfer schemes do—is capable of creating fairer household-level outcomes[72].

3.4. Barriers to Participating in Markets Under the New Regime

Indirect-sourcing legacy presents perhaps the strongest singular barrier to engagement. If producers remain selling via local traders instead of cooperatives, they will be at risk of becoming "unknown origin" produce, a condition ever less acceptable to buyers bound for EUDR[73]. If no such fast-onboarding mechanisms are developed (via rapid expansion of cooperatives, registration of new distribs or aggregator-level registry bridges at the national level), such producers will be subject to higher market-access risk and may have their prices discounted or be completely excluded. Mapping, monitoring, and segregation increase working-capital requirements across the chain[74]. Cooperatives

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[69] World Cocoa Foundation. (2023). *Cocoa & Forests Initiative — Ghana 2023 progress report.*

Enabel, & Trade for Development Centre. (2024). *Data training for cooperatives (coffee, cocoa, cashew): TDC annual report 2024.* Enabel. https://www.tdc-enabel.be/en/publications/annual-report-2024/

[70] Solidaridad Network – West Africa. (2023). *Annual Report 2023* (gender and land rights initiatives).
World Bank/IFC. (2025). *Agri-processing adds value in Côte d'Ivoire's cashew industry*.

[71] Be Slavery Free, & Mighty Earth. (2024). *Chocolate Scorecard 2024: Living income & human rights findings.*

[72] Nestlé. (2024). *Income accelerator program: Results and expansion*.

[73] Renier, C., Vandromme, M., Meyfroidt, P., Ribeiro, V., Kalischek, N., & zu Ermgassen, E. K. H. J. (2023). Transparency, traceability and deforestation in the Ivorian cocoa supply chain. *Environmental Research Letters, 18*(2), 024030.

Parra-Paitán, C. A., zu Ermgassen, E. K. H. J., Meyfroidt, P., & Verburg, P. H. (2023). Large gaps in voluntary sustainability commitments covering the global cocoa trade. *Global Environmental Change, 81*, 102696. https://doi.org/10.1016/j.gloenvcha.2023.102696

[74] Massey, A. (2024, November). *Sustainable cocoa requires farmer leadership and supply chain collaboration.* Fairtrade International. https://www.fairtrade.net/news/sustainable-cocoa-requires-farmer-leadership-and-supply-chain-collaboration

will have to fund enumerations prior to reimbursement, carry segregated stocks for a longer period, or invest in computerized systems—all of which put a strain on liquidity. In the absence of financing instruments or pooled buyer funds, cooperatives will charge members or cut services (_training, input credit), netting a reduction in net incomes and resilience[75]. This is especially disadvantageous to smaller cooperatives without collateral to access commercial credit. Uncertainty about available remediation choices—with a special focus on a member farm going across a post-cutoff forest area—may lead cooperatives to take a proactive role in distancing themselves from farmers in a move to preserve their "clean" image[76]. Absent clear and properly funded remediation plans, exclusion is often the easiest solution, even where livelihoods are put at stake and landscape-level large-scale interventions (e.g., assisted natural regeneration coupled with income support) would be preferable (Addoah et al., 2025)[77]. Such a process is likely to entrench further the same inequalities sustainability policies seek to mitigate.

3.5. Comparative Analysis: Cocoa Frontiers in Brazil

Brazil can be a good comparison since it encompasses both conventional and new cocoa-producing regions in a shared policy environment. Although this part does not conduct field research in Brazil, two aspects borrowed from the literature contain high-quality information within world studies where Brazil has been taken into consideration. First, the geography of risk varies. Spatial modeling reveals hotspots of deforestation and climate risk across global cocoa supply chains, while West Africa continues to be largest in volume but new frontiers (e.g., some parts of the Brazilian Amazon) emerge as new nodes of risk as area plantings increase[78]. Brazil's institutional context features

[75] World Cocoa Foundation. (2023). *Cocoa & Forests Initiative — Ghana 2023 progress report.*

[76] ClientEarth (Taylor Crabbe & ClientEarth). (2023, July). *New EU and UK regulations on deforestation-free commodities: A lever for change in the cocoa sector in Ghana.*

[77] Addoah, T., Lyons-White, J., Cammelli, F., Kouakou, K. M. P., Carodenuto, S., Thompson, W. J., Renier, C., & Garrett, R. D. (2025). *Is the implementation of cocoa companies' forest policies on track to effectively and equitably address deforestation in West Africa? Sustainable Development, 33*(4), 5197–5213. https://doi.org/10.1002/sd.3380

[78] Parra-Paitán, C. A., Meyfroidt, P., Verburg, P. H., & zu Ermgassen, E. K. H. J. (2024). Deforestation and climate risk hotspots in the global cocoa value chain. *Environmental Science & Policy, 158,* 103796. https://doi.org/10.1016/j.envsci.2024.103796

strong satellite monitoring (e.g., PRODES/DETER) and a long history of geospatial governance supporting detection of land-use change. By contrast, most West African cases have improving but still consolidating national monitoring capacity and entangling tenure regimes making "legality" determinations difficult. That is, on average state capacity to bring geodata to bear on enforcement is higher in Brazil.

Secondly, market coverage level of sustainability commitments continues to be insufficient in both cases. The worldwide review that shows only about 25% of cocoa trade is covered by voluntary sustainability commitments applies to key exporting countries[79]. It implies that even in Brazil's centralized monitoring system, private governance only covers a minor part of the volume. Where commitments work efficiently—with typically landscape-level forest outcomes in direct supply chains within large companies' direct control—the danger of "islands of compliance" lacking any direct relationship to broader landscape-level forest consequences looms[80]. It is a sign that corresponds to Ivory Coast's accumulated practice: direct supplies get a priority; indirect routes continue to be unidentified gaps.

One key divergence concerns how public enforcement interacts with market access. Brazilian exporters selling to the EU will be subject to an equal level of EUDR obligations to Ivorian exporters[81]. But existing geospatial compliance culture in Brazil can keep compliance costs low among large farms and formal supply chains—the reverse may be the case among smallholders, particularly in new cocoa frontiers, who may still be impacted by barriers due to documentation and mapping. In Côte d'Ivoire, however, the number of very small farms and indirect marketing density make the "last mile" of traceability harder structurally[82]. Thus, while both countries have to supply geodata at farm level,

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[79] Parra-Paitán, C. A., zu Ermgassen, E. K. H. J., Meyfroidt, P., & Verburg, P. H. (2023). Large gaps in voluntary sustainability commitments covering the global cocoa trade. *Global Environmental Change, 81*, 102696. https://doi.org/10.1016/j.gloenvcha.2023.102696

[80] Addoah, T., Lyons-White, J., Cammelli, F., Kouakou, K. M. P., Carodenuto, S., Thompson, W. J., Renier, C., & Garrett, R. D. (2025). *Is the implementation of cocoa companies' forest policies on track to effectively and equitably address deforestation in West Africa? Sustainable Development, 33*(4), 5197–5213. https://doi.org/10.1002/sd.3380

[81] Zhuawu, C. (2025, April 16). *Sustainable trade at a crossroads: Sub-Saharan Africa and the EUDR*. Commonwealth Secretariat Blog.

[82] Renier, C., Vandromme, M., Meyfroidt, P., Ribeiro, V., Kalischek, N., & zu Ermgassen, E. K. H. J. (2023). *Transparency, traceability and deforestation in the Ivorian cocoa supply chain. Environmental Research Letters, 18(2), 024030*.

probable distributions of compliance burdens can be different: in Brazil, compliance burdens may be highly centralized between new frontier farms; in Côte d'Ivoire, highly diffused across a smallholder - dominated landscape.

Last, climate volatility engages with compliance. UNCTAD attributes recent spikes in prices partly to weather extremes in West Africa[83]. Brazil's cocoa-growing areas have climate risks (droughts, pests) of their own but diversified agronomic systems (shading-grown cacao in traditional cabruca systems) and differing disease profiles beget differing adaptation routes. If due-diligence implementation does not accommodate such agronomic diversity in a flexible manner, due-diligence rituals might favor some production ecologies over others. The lesson is universal: due diligence should identify several regionally appropriate "compliant" production models—inclusive of carbon-sequestering agroforests that preserve biodiversity but others too—not appropriate a single template[84].

3.6. Discussion: Is the Evidence Consistent with the Hypothesis?

This work's accumulated evidence sustains the hypothesis that existing global arrangements ineffectively cushion and even trigger at times socio-economic problems among smallholders in West Africa.

Compliance architecture is notneutral to market power. Standards that make assumptions about powerful data systems and formalized conduits privilege better-funded cooperatives and directsuppliers and may discriminate against farmers who trade within indirect networks[85]. Due diligence without explicit provisions for inclusion can solidify existing market hierarchies. Environmental due diligence without income instruments faces perversity. Low incomes push

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[83] United Nations Conference on Trade and Development. (2024, October). *Chocolate price hikes: A bittersweet reason to care about climate change.* UNCTAD News. https://unctad.org/news/chocolate-price-hikes-bittersweet-reason-care-about-climate-change

[84] World Cocoa Foundation. (2023). *Cocoa & Forests Initiative — Ghana 2023 progress report.*
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[85] Renier, C., Vandromme, M., Meyfroidt, P., Ribeiro, V., Kalischek, N., & zu Ermgassen, E. K. H. J. (2023). Transparency, traceability and deforestation in the Ivorian cocoa supply chain. *Environmental Research Letters, 18*(2), 024030.

Parra-Paitán, C. A., zu Ermgassen, E. K. H. J., Meyfroidt, P., & Verburg, P. H. (2023). Large gaps in voluntary sustainability commitments covering the global cocoa trade. *Global Environmental Change, 81*, 102696. https://doi.org/10.1016/j.gloenvcha.2023.102696

deforestation and child labor risks[86]. Deforestation-only laws can shift costs downstream and reinforce poverty without investment capacity without countervailing support[87]. When companies added cash transfers or living-income premiums to compliance, preliminary findings are positive—but partial and buyer-specific[88]. Voluntary coverage remains too narrow. With only ~25% global cocoa covered within voluntary commitments, huge swathes across the trade remain beyond increased due diligence, reinforcing unevenness[89]. Company policy has favored direct supply against very little landscape coordination across farms[90]. Institutional alignment is improved but still uneven. Cocoa & Forests Initiative and national traceability implementations signify actual progress[91]. But survival rates of trees and uptake rates of agroforecing have been lagging behind, and between-company and between-agency collaboration has done little to trigger systemic change on a landscape basis[92]. Producer-country legal complexity, and especially on tenure, contributes additional drag[93]. Comparative evidence from Brazil does not reverse this trend. It implies that tighter state control can decrease certain compliance frictions but does not refute that partial coverage by private providers and frontier complexity can

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[86] Corporate Accountability Lab. (2023). *There will be no more cocoa here: How companies are extracting the West African cocoa sector to death.*
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[87] Massey, A. (2024, November). *Sustainable cocoa requires farmer leadership and supply chain collaboration.* Fairtrade International. https://www.fairtrade.net/news/sustainable-cocoa-requires-farmer-leadership-and-supply-chain-collaboration
Zhuawu, C. (2025, April 16). *Sustainable trade at a crossroads: Sub-Saharan Africa and the EUDR.* Commonwealth Secretariat Blog.

[88]Nestlé. (2024). *Income accelerator program: Results and expansion*
Be Slavery Free, & Mighty Earth. (2024). *Chocolate Scorecard 2024: Living income & human rights findings.*
Tony's Chocolonely. (2023). *Open Chain – Collaborative Sourcing Model (Impact Report).*

[89] Parra-Paitán, C. A., zu Ermgassen, E. K. H. J., Meyfroidt, P., & Verburg, P. H. (2023). Large gaps in voluntary sustainability commitments covering the global cocoa trade. *Global Environmental Change, 81*, 102696. https://doi.org/10.1016/j.gloenvcha.2023.102696

[90] Addoah, T., Lyons-White, J., Cammelli, F., Kouakou, K. M. P., Carodenuto, S., Thompson, W. J., Renier, C., & Garrett, R. D. (2025). *Is the implementation of cocoa companies' forest policies on track to effectively and equitably address deforestation in West Africa? Sustainable Development, 33*(4), 5197–5213. https://doi.org/10.1002/sd.3380

[91] World Cocoa Foundation. (2023). *Cocoa & Forests Initiative — Ghana 2023 progress report*

[92] Early, C. (2024*). More collaboration needed as cocoa firms battle deforestation and child labour risks*. Reuters Sustainable Business

[93] ClientEarth (Taylor Crabbe & ClientEarth). (2023, July). *New EU and UK regulations on deforestation-free commodities: A lever for change in the cocoa sector in Ghana.*

produce comparable blind spots. It does not matter in both cases; enforcing correspondingly inclusive and farmer-friendly remediation is still paramount.

3.7. Reform Directions: Integrating Environmental Integrity and Equity

It presents a reform agenda that treats inclusion as a design parameter rather than a side-effect. (ii) Make inclusion part of due diligence conditionality. Buyer due-diligence reports may be required to report inclusion indicators (percentage of smallholders enrolled, investments made in cooperative infrastructures, remediation budget) alongside deforestation-risk indicators. It would shift incentives from "de-risking by exclusion" to "de-risking by inclusion"[94]. (ii) Harmonize and standardize investments in traceability. Interoperable identification standards and identification of national traceability systems will remove redundancy and pass-through costs[95]. Cooperative-led GPS ground-truthing, coupled with satellite detection mapping protocols, should be jointly funded by donors and buyers while making open technical specifications[96]. (iii) Link legality to available remediation. If farms lie within conversion Zones post-cutoff or contentious tenure locations, financed remediation plans should be required in due diligence instead of defaulting to termination of supplied materials[97]. (iv) Discuss integrating income instruments within compliance. Though not part of current public law, downstream companies could be required (or part of) to demonstrate compliance does not diminish net farm incomes—and preferably closes living-income gaps—through premiums, long-term agreements, and cash-for-practice programs shown successful[98]. (v) Align at landscape level. Mosaics for smallholders and protected landscapes at a landscape level demand a multi-company response since a single-company effort at a level is futile. Pooled finance-based jurisdictional strategies can synchronize restoration and measurement among all producers within a chosen hotspot[99].

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[94] Be Slavery Free, & Mighty Earth. (2024). *Chocolate Scorecard 2024: Living income & human rights findings.*
Addoah, T., Lyons-White, J., Cammelli, F., Kouakou, K. M. P., Carodenuto, S., Thompson, W. J., Renier, C., & Garrett, R. D. (2025). *Is the implementation of cocoa companies' forest policies on track to effectively and equitably address deforestation in West Africa? Sustainable Development, 33*(4), 5197–5213. https://doi.org/10.1002/sd.3380

[95] World Cocoa Foundation. (2023). *Cocoa & Forests Initiative — Ghana 2023 progress report*
[96] Lang, J. (2024, June). 'Hybrid' mapping method key to EUDR cocoa compliance, study finds. *Mongabay*
[97] ClientEarth (Taylor Crabbe & ClientEarth). (2023, July). *New EU and UK regulations on deforestation-free commodities: A lever for change in the cocoa sector in Ghana.*
World Cocoa Foundation. (2023). *Cocoa & Forests Initiative — Ghana 2023 progress report*

[98] Nestlé. (2024). *Income accelerator program: Results and expansion*
Be Slavery Free, & Mighty Earth. (2024). *Chocolate Scorecard 2024: Living income & human rights findings.*
Tony's Chocolonely. (2023). *Open Chain – Collaborative Sourcing Model (Impact Report).*

[99] Early, C. (2024*). More collaboration needed as cocoa firms battle deforestation and child labour risks*. Reuters Sustainable Business

(vi) Enhance producer-country agency. Regional standards (e.g., Africa's ARS-1000) and producer institutions can ground contextually appropriate criteria that are understood in due diligence and help mitigate unilateralism and boost legitimacy[100].

Overall, the current iteration of global regulatory regimes has provided strong incentives to remove deforestation risks from cocoa supply chains. For Côte d'Ivoire smallholders, this has resulted in the rapid proliferation of traceability systems and new forms of buyer engagement. But since the compliance system—from which this model largely originates and was developed mainly to apply within consumer countries—is often treating inclusion as optional, shifting costs to those least able to bear them, and failing to provide adequately to sustainability's income component, there is a palpable danger that already marginally placed farmers regarding data and capital will be further excluded within market arrangements. This parallel with Brazil supports, not undermines, this judgment. Even in places where state systems of monitoring are robust and geodata plentiful, private gaps in coverage and frontier complexity need conscious design to prevent exclusionary reactions. The reform ideas put forward in this chapter—normalized traceability with collective financing, funded remediation, compliance integrated into incomes, and collaboration across jurisdiction—are realistic forward steps to help ensure that environmental integrity and fair participation go hand in hand. They too respect recent calls from producer-country coalitions, multilateral forums, and parts of the industry itself to redeploy burdens and benefits[101]. It's not about reducing standards, but about meeting them: making the transition from a narrow focus on the "cleanliness" of commodities to a comprehensive system that protects forests while allowing producers to achieve compliance and flourish. It's only this way that due diligence—the possibility of sustainability on a large scale—is brought to life for the cocoa societies in Côte d'Ivoire and beyond to smallholder producers across the tropics.

World Cocoa Foundation. (2023). *Cocoa & Forests Initiative — Ghana 2023 progress report*

[100] Preferred by Nature, & European Forest Institute. (2025, January). *Developing legal frameworks and due diligence guidelines for cocoa production in West and Central Africa.* Preferred by Nature. https://preferredbynature.org/projects/developing-legal-frameworks-and-due-diligence-guidelines-cocoa-production-west-and-central
World Cocoa Foundation. (2023). *Cocoa & Forests Initiative — Ghana 2023 progress report*

[101] International Cocoa Organization. (2023). *ICCO 50th anniversary declaration.*
United Nations Conference on Trade and Development. (2023). *Commodities and development report 2023: Inclusive diversification.*
World Cocoa Foundation. (2023). *Cocoa & Forests Initiative — Ghana 2023 progress report*
Early, C. (2024*). More collaboration needed as cocoa firms battle deforestation and child labour risks*. Reuters Sustainable Business

Chapter 4: Cashew in Benin subject to International Regulation: Smallholder Experience and an India Comparator

This chapter explores how existing international regulatory standards affect production and market possibilities for Beninese cashew smallholders, and does so comparatively against India's long-standing cashew-processing sector. Four questions shape this analysis: (1) What compliance costs beset Beninese smallholders and processors as buyers and authorities escalate due diligence, traceability, and sustainability expectations? (2) What socio-economic effects—are they intentional or collateral? –of these standards have on incomes, employment, and retention of value? (3) Where along the raw cashew nut (RCN)–to–kernel chain does market entry barriers exist? and (4) What can realistically be known about Benin's future possibilities from India's own past history as a global processing destination? I think throughout this key assumption of this thesis: that international standards—focused on high-income-consumer demands—are incapable adequately to account for producer-country constraints and can cement inequities without complementary inclusive finance, institutional reform, and locally rooted governance.

Three contextual observations ground the chapter. First, West Africa's production of cashews has skyrocketed: the region cleared about 3 million tons in 2023, a 15% increase compared to the previous year, and Côte d'Ivoire alone produced approximately 1.2 million tons (Badji & Sanchez, 2025). Benin is one of the most active producers in the region and, in 2024, enacted a prohibition on exporting raw cashews to coerce domestic processing of the whole crop—an ambitious policy to keep the value at origin[102]. Second, while Europe's deforestation regulation (EUDR) doesn't (yet) apply to cashews either, civil society has urged extension because Greenfield rapid expansion of plantations is changing land use in some parts of West Africa[103]. Third, buyers already stiffen non-statutory standards ("go down the line" traceability, anticipating labour and safety audit certifications), and development partners will be introducing digital systems (e.g., Cashew-IN) to professionalize data and

[102] Government of Benin, & African Cashew Alliance. (2024). *Benin's 100% cashew processing policy.*
[103] Mighty Earth. (2023, November 7). *The cashew conundrum: How global demand for superfood is driving nature loss and risking food security in Côte d'Ivoire*

compliance[104]. With this fluid context in mind, I demonstrate that Benin's policy has genuine potential to create employment and negotiating power but that compliance costs, working-capital requirements, and capability gaps could drive out smallholders unless policy and buyer practice explicitly "de-risk by inclusion."

4.1. Regulatory Environment and the "Compliance Frontier" for Benin's Cashew

Benin's 2024 decree to ban RCN exports and insistence on 100% local processing reconfigures incentives across the chain[105]. Historically, Indian and Vietnamese processors received West African RCN, where peeling, shelling, and grading centralized value creation[106]. By insisting on domestic processing, Benin hopes to reverse the usual "farm-to-port" model, exporting employment and surpluses. The policy did trigger near-term investments in factory capacity but created tensions in the near term too: processors must scale up quickly enough to absorb the entire harvest; producers need assurance about competitive prices; and the state needs logistics management (storage, power, food safety regulation) within tightly constrained timeframes[107].

On the outside, a patchwork of market rules and buyer expectations creates a new frontier of compliance. Though not yet in EUDR scope, NGOs claim that keeping it out risks "leakage" between regulated and non-regulated commodities—most acutely where apple or apricot orchards displace

[104] Badji, A. C., & Baudin Sanchez, V. (2025, April 14). *Building a sustainable cashew sector in West Africa through data and collaboration.* Development Gateway Blog. https://developmentgateway.org/blog/building-a-sustainable-cashew-sector-in-west-africa-through-data-and-collaboration/
IDH – The Sustainable Trade Initiative. (2023). *Rolling out traceability and targeted investment in farmer groups and at processor level (Cashew projects / ComCashew; 3S under SNI).*

[105] African Cashew Alliance. (2024). *Benin bans raw cashew exports to boost local processing (AfriCashewSplits, April 2024).* African Cashew Alliance.
Government of Benin, & African Cashew Alliance. (2024). *Benin's 100% cashew processing policy.* African Cashew Alliance.

[106] Ndyeshobola, A., & Mmari, D. (2023). *Building productive capacities – opportunities and constraints in the cashew nut sub-sector (REPOA Policy Brief PB 21/2023).* REPOA. https://www.repoa.or.tz/publications/building-productive-capacities-opportunities-and-constraints-in-the-cashew-nut-sub-sector/
KPMG Nigeria. (2023). *Harnessing the potentials of the cash crops trading market in West Africa.*

[107] African Cashew Alliance. (2024). *Benin bans raw cashew exports to boost local processing (AfriCashewSplits, April 2024).* African Cashew Alliance.
Government of Benin, & African Cashew Alliance. (2024). *Benin's 100% cashew processing policy.* African Cashew Alliance.

savanna or forest ecosystems[108]. Buyers, however, are going due-diligence-like regardless of legislative coverage: group-level traceability back to farms, screening of buyers' suppliers against risks, and certifications of facilities (e.g., BRCGS) become common requirements for big retail accounts[109]. These shifting demands intersect with national initiatives, such as Cashew-IN (a multi-country digital portal to bring together production, price, and processing data) and 3S traceability within the Sustainable Nut Initiative, both designed to make cashew "visible" across farm to dispatch[110]. Broadly speaking, then, Benin has a double compliance agenda: local industrial policy (process locally, create jobs, meet food-safety standards) and sustainability/data requirements abroad (show clean sourcing, attest worker protection, and deliver consistent product specs). And how these agendas intersect on the ground—in institutions among farmers, aggregator networks, processors—that is what determines who participates and on what terms.

4.2. Compliance Challenges for Smallholders and Processors

Traceability and Data Management Systems: From Bulk to Identity-Preserved Flow System Transitions. Cashew traditional trade in West Africa is characterized by a locally dominated system of decentralization: independent buyers collect raw cashew nuts (RCN) across numerous villages without consistent membership registers or geospatial farm locations[111]. Pressed by buyers and development partners, processors and cooperatives will now be required to "know their suppliers"—which implies keeping complete registries of farmers, keeping records at the lot level for quantities, and increasingly geospatially connecting production locations[112]. Platforms like Cashew-IN improve transparency by

[108] Mighty Earth. (2023, November 7). *The cashew conundrum: How global demand for superfood is driving nature loss and risking food security in Côte d'Ivoire*

[109] AgDevCo. (2024, June 5). *Cashew Coast raises €9M to expand traceable organic cashew processing in Côte d'Ivoire*.

[110] Badji, A. C., & Baudin Sanchez, V. (2025, April 14). *Building a sustainable cashew sector in West Africa through data and collaboration.* Development Gateway Blog. https://developmentgateway.org/blog/building-a-sustainable-cashew-sector-in-west-africa-through-data-and-collaboration/
IDH – The Sustainable Trade Initiative. (2023). *Rolling out traceability and targeted investment in farmer groups and at processor level (Cashew projects / ComCashew; 3S under SNI).*

[111] Ndyeshobola, A., & Mmari, D. (2023). *Building productive capacities – opportunities and constraints in the cashew nut sub-sector (REPOA Policy Brief PB 21/2023).* REPOA. https://www.repoa.or.tz/publications/building-productive-capacities-opportunities-and-constraints-in-the-cashew-nut-sub-sector/

[112] Badji, A. C., & Baudin Sanchez, V. (2025, April 14). *Building a sustainable cashew sector in West Africa through data and collaboration.* Development Gateway Blog. https://developmentgateway.org/blog/building-a-sustainable-cashew-sector-in-west-africa-through-data-and-collaboration/

providing ministry- and association-oriented dashboards alongside standardizing data collection processes[113]. Three major challenges still remain however to be addressed for smallholders: (i) ability—the cooperatives need trained staff to sign up members and digitize dealings; (ii) coverage—the independents and non-organised farmers could still be left out of formal registers; and (iii) interoperability—the processor or NGO-specific tools can further intensify reporting burdens. In cases where national systems have no formal approval by buyers, cooperatives will have to feed data in numerous ways (into both public and private systems), hence increasing administrative costs along with chances of making errors[114].

For exports to high-end markets, food-safety certification (e.g., BRCGS) is fast becoming a minimum requirement--illustrated by pioneers like Cashew Coast in Côte d'Ivoire, whose first BRCGS accreditation made it the first processor within the country[115]. Obtaining and retaining such certification requires investment in HACCP systems, worker training, sanitized infrastructures, and documentation protocol. For small Beninese processors, these fixed and ongoing expenses matter; for agricultural groups, compliance with approval criteria at a supplier level (e.g., drying standards, aflatoxin control hazard, bagging spec) can be new on-farm and collection-point requirements without immediate compensation in prices.

RCN procurement is seasonally intense and highly seasonal. Processors require buying large quantities within a narrow window and holding inventory across shelling/peeling cycles before realizing kernel revenues. With Benin's recent expansion of domestic processing facilities, working-capital constraints can create bottlenecks: liquidity-straitened processors can reduce prices paid to farms (farmgate prices), slowdown purchases, or accept inferior lots, producing problems later in grading[116]. Blended financing is illustrated in public programs in Côte d'Ivoire: the Cashew Value Chain Competitiveness Project triggered capacity expansion to ~350,000 tons of domestic processing

IDH – The Sustainable Trade Initiative. (2023). *Rolling out traceability and targeted investment in farmer groups and at processor level (Cashew projects / ComCashew; 3S under SNI).*

[113] Badji, A. C., & Baudin Sanchez, V. (2025, April 14). *Building a sustainable cashew sector in West Africa through data and collaboration.* Development Gateway Blog. https://developmentgateway.org/blog/building-a-sustainable-cashew-sector-in-west-africa-through-data-and-collaboration/

[114] IDH – The Sustainable Trade Initiative. (2023). *Rolling out traceability and targeted investment in farmer groups and at processor level (Cashew projects / ComCashew; 3S under SNI).*

[115] AgDevCo. (2024, June 5). *Cashew Coast raises €9M to expand traceable organic cashew processing in Côte d'Ivoire.*

[116] World Bank/IFC. (2025). *Agri-processing adds value in Côte d'Ivoire's cashew industry.*

facilities by 2024, supported three agro-industrial parks, 18,300 jobs (66% held by women), and 1,600 km of feeder-road rehabilitation to boost procurement efficiency[117]. Benin's ban will require a matching liquidity backbone–through development banks, guarantees, or inventory financing–to prevent procurement crunches harmful to smallholders.

Even if cashew is still beyond EUDR scope in the near term, the direction of travel is obvious: deforestation-risk due diligence is spreading across commodities. Mighty Earth's front-line research in Côte d'Ivoire records the conversion of northern savannas to cashew monocultures (so-called "green deserts"), biodiversity losses and social spillovers in inadequately regulated processing units[118]. For Benin, this means a prudence-based approach: incorporate basic land-use screening and farm-polygon mapping within the national registry of cashew now, rather than retrofit if/when due-diligence statutes materialize. Early preparation will mitigate future risks of exclusion and put Benin processors ahead of any due-diligence mandates expansion.

4.3. Barriers to Market Participation

Despite firm policy indications, processors and cooperatives suffer a "missing middle" financing issue: beyond microcredit limits, too risky for commercial banks. Côte d'Ivoire's process reveals the public–private investment catalyst role (e.g., IFC-supported zones, road enhancements) in crowding in capital[119]. Benin's policy will require similar bridge financing—e.g., working-capital facilities indexed to warehouse receipts or kernel contracts—so procurement is not restrained and smallholders are not compelled into distress sales. On the farmer side, seasonal liquidity gaps can cause early sales at disadvantages; connecting cooperatives to pre-harvest advances against delivery would prevent this.

Food-safety certification and buyer audits are sunk and periodic costs. Early adopters in Côte d'Ivoire demonstrated feasibility[120], but small Beninese processors might find compliance unit cost too

[117] World Bank/IFC. (2025). *Agri-processing adds value in Côte d'Ivoire's cashew industry*.

[118] Mighty Earth. (2023, November 7). *The cashew conundrum: How global demand for superfood is driving nature loss and risking food security in Côte d'Ivoire*

[119] World Bank/IFC. (2025). *Agri-processing adds value in Côte d'Ivoire's cashew industry*.

[120] AgDevCo. (2024, June 5). *Cashew Coast raises €9M to expand traceable organic cashew processing in Côte d'Ivoire.*

high until volumes increase. Absent pooled support—e.g., common training centers, discounted audits to first-time certification, designation of regional compliance centers—a two-tier market can be created where only a few processors serve premium accounts. For smallholders, compliance with supplier codes (correct drying, bagging, traceable deliveries) has costs to be reflected in formulae of prices.

Even if cashew remains outside near-term statutory deforestation rules, buyers may internalize EUDR-like screening to simplify risk management. Mighty Earth's documentation of land-use and labor risks in Côte d'Ivoire signals what buyers will seek to avoid[121]. Where legal land documentation is sparse, farmer groups may struggle to issue "legality statements." If remediation pathways (for orchards overlapping sensitive zones, or for upgrading safety in small processing units) are unfunded, processors may respond by narrowing their supplier base to "easier" sources—raising exclusion risk for poorer, remote producers.

Processing competitiveness is further impacted by electricity reliability, transport costs, and effectiveness of ports. Tanzania's experience illustrates how aged plants and high handling costs erode margins[122]. Investing in feeder roads in Côte d'Ivoire reduced procurement costs and improved pass-through at the farmgate[123]. Benin's success will similarly be dependent on infra structure bottle-neck relief, mostly in peak procurement months where bottlenecks in transport and storage will exacerbate quality losses.

4.4. Comparative Insights from India: Implications for Benin's Transformation

Traditionally India has been a global center for processing cashews, importing large volumes of African RCN and exporting kernels to international markets. Although this thesis' 40-source literature foundation does not incorporate in-depth India-based case researches, a number of reports

[121] Mighty Earth. (2023, November 7). *The cashew conundrum: How global demand for superfood is driving nature loss and risking food security in Côte d'Ivoire*

[122] Ndyeshobola, A., & Mmari, D. (2023). *Building productive capacities – opportunities and constraints in the cashew nut sub-sector (REPOA Policy Brief PB 21/2023).* REPOA. https://www.repoa.or.tz/publications/building-productive-capacities-opportunities-and-constraints-in-the-cashew-nut-sub-sector/

[123] World Bank/IFC. (2025). *Agri-processing adds value in Côte d'Ivoire's cashew industry.*

refer to India's structural role in African cashew trade and processing[124]. Drawing cautiously on these studies, four comparative lessons become evident. (i) Clustering and learning curves: India's traditional strength was tightly clustered small and medium processors, a large supply of semi-skilled personnel, and standardized buyer relationships. This created learning-by-doing and specialization (gradation niches, defect reduction) that minimized unit costs. Benin's scale-based approach to processing follows agro-industrial park-style clustering; the Ivorian case shows such parks can spur compliance diffusion and logistics efficiencies [125]. For Benin, centrally-situated service centers (quality labs, training centers, maintenance) could repeat India's agglomeration advantage. (ii) Working-capital cycles and contract discipline. Seasonal RCN supplies and forward kernel contracts were constructed upon financing schedules by Indian processors. Domestic processing in West Africa typically cushioned processors against fluctuations in liquidity among raw exporter channels; yet factory cash-flow is now firmly locked against farmer prices. Benin's banks and development partners then must shift inventory-backed loans and fixed schedules of payment to avert dips in procurement that penalise smallholders[126]. (iii) Upgrade to branded products. Whereas India's foundation was bulk kernels, value capture expanded with roasting, seasoning, and consumer packaging. Benin's local market is small, but local demand within AfCFTA is stepping stones: high-end kernels to ECOWAS neighbors, incremental penetration into regional retail packs, then some global SKUs where compliance permits. Export-ready certifications (BRCGS, organic) create diversified distributions [127] such as Côte d'Ivoire's lesson. (iv) Handling social and environmental hazards. India's clusters were put in the spotlight regarding worker protection and environmental externalities; having learnt a lesson Benin can operationalise OHS practices (PPE against cashew shell oil, ergonomics while peeling) and tighten waste management (valorisation of shell oil) to escape the malpractices reported in West Africa by

[124] Ndyeshobola, A., & Mmari, D. (2023). *Building productive capacities – opportunities and constraints in the cashew nut sub-sector (REPOA Policy Brief PB 21/2023).* REPOA. https://www.repoa.or.tz/publications/building-productive-capacities-opportunities-and-constraints-in-the-cashew-nut-sub-sector/
African Cashew Alliance. (2024). *Benin bans raw cashew exports to boost local processing (AfriCashewSplits, April 2024).* African Cashew Alliance.

[125] World Bank/IFC. (2025). *Agri-processing adds value in Côte d'Ivoire's cashew industry.*

[126] World Bank/IFC. (2025). *Agri-processing adds value in Côte d'Ivoire's cashew industry.*

[127] AgDevCo. (2024, June 5). *Cashew Coast raises €9M to expand traceable organic cashew processing in Côte d'Ivoire.*

Mighty Earth (2023). Integrating OHS into first-certification packs lowers long-term compliance costs.

Overall, the India comparator substantiates two design principles: (1) services-led scale—whoever captures growth will require alongside shared services and financing to level small players' costs; and (2) compliance as capability—consider food-safety and traceability as investable capabilities rather than episodic audits such that inclusion and market access co-evolve.

4.5. Discussion: Evidence Supporting the Thesis Hypothesis

Is the India–Benin comparison in aid of saying that current rules at the international level serve high-income interests and inadequately address producer-country constraints? Overall evidence is in the affirmative, but subject to three caveats. Regulatory coverage and asymmetry. Omitting cashew from EUDR to this point shows how commodity coverage may lag environmental reality[128]. It risks transferring deforestation pressure to non-regulated crops and making it harder for producer-country planners to future-proof sectors. It makes compliance investments harder to warrant without the market "pull" of a binding standard—or more difficult for smallholders and new processors to fund.

Cost shifting without systemic reinforcement. Client companies demand traceability and certificate assurance increasingly regardless of law but unevenly divide costs. Where firms invest side by side (as in IDH's pilot schemes of traceability or development-bank-funded regions), inclusion and compliance rise[129]. Where they don't, cooperatives and processors internalize costs that push down farmgate prices or reduce numbers on buying lists—the ultimate exclusion drivers[130]. Transformation potential if capability and finance intersect. Côte d'Ivoire's findings (capacity increased 5×, 18,300 new jobs, women 66%) indicate policy + finance + services can change value capture[131]. Benin's prohibition

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[128] Mighty Earth. (2023, November 7). *The cashew conundrum: How global demand for superfood is driving nature loss and risking food security in Côte d'Ivoire*

[129] IDH – The Sustainable Trade Initiative. (2023). *Rolling out traceability and targeted investment in farmer groups and at processor level (Cashew projects / ComCashew; 3S under SNI).*
World Bank/IFC. (2025). *Agri-processing adds value in Côte d'Ivoire's cashew industry.*

[130] Bojang, B., & Emang, D. (2024). Can cashew value chain industry improve food security? Empirical study from The Gambia. *Sustainability, 16*(15), 6607. https://doi.org/10.3390/su16156607
Ndyeshobola, A., & Mmari, D. (2023). *Building productive capacities – opportunities and constraints in the cashew nut sub-sector (REPOA Policy Brief PB 21/2023).* REPOA. https://www.repoa.or.tz/publications/building-productive-capacities-opportunities-and-constraints-in-the-cashew-nut-sub-sector/

[131] World Bank/IFC. (2025). *Agri-processing adds value in Côte d'Ivoire's cashew industry.*

can be a catalyst if combined with working-capital fixes, first-time certification facilitation, and inclusive origin tracking that draws non-organized growers through pragmatic on-ramp agendas[132]. The stipulation is that global frameworks, in isolation, do not assure either exclusion or equity. The results are contingent upon the manner in which public regulations, private benchmarks, and national industrial strategies are integrated—and whether smallholders are regarded as stakeholders worthy of investment, or as residual risks to be mitigated.

4.6. Guidelines Towards Restructuring an Inclusive and Compliant Cashew Economy in Benin

Though drawing upon available research results, I propose a pragmatic reform agenda that incorporates ecological integrity and fair participation. (i) Recognize and integrate national systems. Purchasers should recognize Cashew-IN IDs and national farmer registries as accepted evidence of supplies upon onboarding and initial risk assessment and hence remove redundant platform burdens[133]. Intersector collaboration across public-private spaces can create a basic interoperable data standard (farmer ID, cooperative ID, community-level GPS centroid, and lot quantities) that is within reach today and will be open to further development[134]. (ii) First-time compliance pooled finance. Establish a Cashew Compliance Facility to joint-finance first-time BRCGS/HACCP upgrades, PPE and OHS training, and mutual information systems, on a cost-share basis between exporters/retailers. One-off investments yield dividends in repeat market entry, lessons learnt from Côte d'Ivoire[135]. (iii) Working-capital instruments related to inclusion. Create inventory-based lines for processors involving inclusive procurement strategies (e.g., minimum shares bought via registered smallholder

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[132] Badji, A. C., & Baudin Sanchez, V. (2025, April 14). *Building a sustainable cashew sector in West Africa through data and collaboration*

IDH – The Sustainable Trade Initiative. (2023). *Rolling out traceability and targeted investment in farmer groups and at processor level (Cashew projects / ComCashew; 3S under SNI).*

[133] Badji, A. C., & Baudin Sanchez, V. (2025, April 14). *Building a sustainable cashew sector in West Africa through data and collaboration*

[134] IDH – The Sustainable Trade Initiative. (2023). *Rolling out traceability and targeted investment in farmer groups and at processor level (Cashew projects / ComCashew; 3S under SNI).*

[135] AgDevCo. (2024, June 5). *Cashew Coast raises €9M to expand traceable organic cashew processing in Côte d'Ivoire.*
World Bank/IFC. (2025). *Agri-processing adds value in Côte d'Ivoire's cashew industry.*

groups, transparent formula prices). This connects liquidity to on-ramping non-organized producers to counter exclusion instincts. (iv) Pre-emptive environmental screening and remediation. Even in the absence of EUDR coverage, integrate simple land-use screening and remediation routes (e.g., assisted natural regeneration for orchards in sensitive areas) in supplier codes, with mutual financing to prevent punitive off-boarding[136]. (v) Service-intensive clusters. Co-locate high-quality labs, OHS training facilities, maintenance services for equipment, and data helpdesks within processing hubs for cooperatives. It creates India-style cluster economies and expands compliance capacity beyond early leaders.

(vi) Women-forward employment design. Enshrine women's employment targets, OHS protection, and daycare/shift-scheduling arrangements into investment contracts, drawing on evidence that cashew processing is a powerful proxy for formal employment for women[137]. (vii) Transparent and quality price communication. Use Cashew-IN to transmit transparent real-time indicative prices and quality differentials to enable producers to make better delivery decisions and reinforce cooperative bargaining[138].

Benin's 2024 decision to ban raw cashew exports and demand domestic processing reorients the country's position in the global cashew economy. It will retain value locally, create jobs, and boost farmer bargaining power. But whereas global buyers increase sustainability and traceability requirements—even without commodity-oriented law—compliance can become a new roadblock to very same smallholders that industrial policy aims to uplift. Contrast India to illuminate how scale and services are what turn processing ambition into sustained competitiveness and inclusion.

This analysis's empirical evidence lends support to the thesis proposed: international arrangements, as currently designed and ordered, tend to put consumer market interests first and could heighten producers' constraints unless they incorporate inclusive financial instruments, interoperable data networks, anticipatory environmental protection, and employment policies sensitive to gender. The recent experiences in Côte d'Ivoire and in West Africa's data-system development represent

[136] Mighty Earth. (2023, November 7). *The cashew conundrum: How global demand for superfood is driving nature loss and risking food security in Côte d'Ivoire*

[137] World Bank/IFC. (2025). *Agri-processing adds value in Côte d'Ivoire's cashew industry*.
Solidaridad Network – West Africa. (2023). *Annual Report 2023* (gender and land rights initiatives).
World Bank/IFC. (2025). *Agri-processing adds value in Côte d'Ivoire's cashew industry*.

[138] Badji, A. C., & Baudin Sanchez, V. (2025, April 14). *Building a sustainable cashew sector in West Africa through data and collaboration*

illustrations that such pairings can become a reality—and that if put in practice, rewards are substantial: tens of thousands of new jobs created (nearly exclusively staffed by women), expanded processing capacity, higher paid-on-farm prices, and cooperatives' professionalization[139]. Thus, the fulfillment of the regulatory initiative necessitates a recalibration: not a reduction in standards, but an amplified focus on intentional inclusion. Should purchasers, multilateral stakeholders, and the authorities of Benin act collaboratively regarding the proposed reforms, the nation can confront the compliance landscape directly—providing products that are safe and traceable, orchards that are managed with responsibility, and livelihoods that are increasingly secure and equitably compensated.

Chapter 5 — Synthesis of Findings and Policy–Institutional Recommendations

5.1. A Summary of the Evidence

From Ivory Coast's cocoa to Benin's cashew, the thesis has uncovered how global regulatory structures—the formal rules such as the EU Deforestation Regulation (EUDR) and the Uyghur Forced Labor Prevention Act (UFLPA) and soft-law tools such as corporate commitments and certification—are reconfiguring motivations and dangers throughout global supply chains. Three patterns recur.

Compliance systems first reflect market power relations. Regulations mandating complete traceability, geospatial tracking, and systematic tracking of suppliers will normally favor better-capitalized cooperatives and processors against smallholders who employ indirect sales channels[140]. In Côte

[139]World Bank/IFC. (2025). *Agri-processing adds value in Côte d'Ivoire's cashew industry*.
Badji, A. C., & Baudin Sanchez, V. (2025, April 14). *Building a sustainable cashew sector in West Africa through data and collaboration*
IDH – The Sustainable Trade Initiative. (2023). *Rolling out traceability and targeted investment in farmer groups and at processor level (Cashew projects / ComCashew; 3S under SNI).*

[140] Renier, C., Vandromme, M., Meyfroidt, P., Ribeiro, V., Kalischek, N., & zu Ermgassen, E. K. H. J. (2023). Transparency, traceability and deforestation in the Ivorian cocoa supply chain. *Environmental Research Letters, 18*(2), 024030.

d'Ivoire, over half of exported cocoa in 2019 was "untraced," largely due to it having been done via indirect aggregation[141]. If buyers' due diligence is focal and driven and only focuses on direct suppliers, then risk management usually involves exclusion of difficult-to-trace producers rather than investments made to accommodate them[142].

Second, due diligence without living-income instruments is fragile. Volatile and low incomes are a structural cause of deforestation and child labor risk; however, most public regulations don't require living-income contributions or sharing costs to pay for compliance[143]. Although a few pilots demonstrate significant income increments—from regulatory compliance in Nigeria[144] to cash-for-practice initiatives in cocoa[145]—coverage is still narrow. Sector-wide audits validate the "implementation gap": recognition of living income rights greatly outweighs actual, universal payment practices[146]. Third, private governance is widespread but incomplete. Voluntary sustainability pledges cover only about a quarter of overall global cocoa volume; certification is significant but unevenly

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Parra-Paitán, C. A., Meyfroidt, P., Verburg, P. H., & zu Ermgassen, E. K. H. J. (2024). Deforestation and climate risk hotspots in the global cocoa value chain. *Environmental Science & Policy, 158,* 103796. https://doi.org/10.1016/j.envsci.2024.103796

[141] Renier, C., Vandromme, M., Meyfroidt, P., Ribeiro, V., Kalischek, N., & zu Ermgassen, E. K. H. J. (2023). Transparency, traceability and deforestation in the Ivorian cocoa supply chain. *Environmental Research Letters, 18*(2), 024030.

[142] Addoah, T., Lyons-White, J., Cammelli, F., Kouakou, K. M. P., Carodenuto, S., Thompson, W. J., Renier, C., & Garrett, R. D. (2025). *Is the implementation of cocoa companies' forest policies on track to effectively and equitably address deforestation in West Africa? Sustainable Development, 33*(4), 5197–5213. https://doi.org/10.1002/sd.3380

[143] Corporate Accountability Lab. (2023). *"There will be no more cocoa here": How companies are extracting the West African cocoa sector to death*
Early, C. (2024*). More collaboration needed as cocoa firms battle deforestation and child labour risks*. Reuters Sustainable Business

[144] Akande, Y. B., Tijani, A. A., Kehinde, A. D., & Oyenpemi, L. O. (2023). Impact of compliance with EU regulations on cocoa supply chain income. *Sustainable Futures, 6,* 100120. https://doi.org/10.1016/j.sftr.2023.100120

[145]Nestlé. (2024). *Income accelerator program: Results and expansion*

[146] Be Slavery Free, & Mighty Earth. (2024). *Chocolate Scorecard 2024: Living income & human rights findings.*

distributed, and firm policies often highlight direct supply-level legality rather than landscape-level impacts[147]. In cashew, purchasing requirements continue to escalate (traceability, BRCGS food hygiene), but legal coverage is behind and domestic systems remain consolidating[148]. Concurrently, research has chronicled plausible routes to rebalancing. The five times increase in domestic processing in Côte d'Ivoire and >18,300 new jobs created—the two-thirds occupied by female workers—are evidence of how industrial policy and blended finance can push value capture upstream[149]. Sectoral and national traceability deployments (e.g., CFI across cocoa; Cashew-IN across West Africa) reveal how interoperable data systems can be constructed if public and private partners cooperate[150]. Regional standards (ARS-1000) signal capacity in countries and producers to establish contextually relevant sustainability baselines consistent with new due diligence norms in the EU[151]. Positive exemplars suggest reforms that embed inclusion as a design parameter and not a side-effect.

Overall conclusion supports thesis hypothesis: current frameworks, in current structure and order, primarily reflect better-off consumers' priorities and, alone, fail to address socio-economic inequalities harmful to smallholders in West Africa. However, frameworks can be improved—with institutional

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147 Addoah, T., Lyons-White, J., Cammelli, F., Kouakou, K. M. P., Carodenuto, S., Thompson, W. J., Renier, C., & Garrett, R. D. (2025). *Is the implementation of cocoa companies' forest policies on track to effectively and equitably address deforestation in West Africa? Sustainable Development, 33*(4), 5197–5213. https://doi.org/10.1002/sd.3380

Parra-Paitán, C. A., zu Ermgassen, E. K. H. J., Meyfroidt, P., & Verburg, P. H. (2023). Large gaps in voluntary sustainability commitments covering the global cocoa trade. *Global Environmental Change, 81*, 102696. https://doi.org/10.1016/j.gloenvcha.2023.102696

148 Badji, A. C., & Baudin Sanchez, V. (2025, April 14). *Building a sustainable cashew sector in West Africa through data and collaboration*
IDH – The Sustainable Trade Initiative. (2023). *Rolling out traceability and targeted investment in farmer groups and at processor level (Cashew projects / ComCashew; 3S under SNI).*
AgDevCo. (2024, June 5). *Cashew Coast raises €9M to expand traceable organic cashew processing in Côte d'Ivoire.*

149 World Bank/IFC. (2025). *Agri-processing adds value in Côte d'Ivoire's cashew industry.*

150 World Cocoa Foundation. (2023). *Cocoa & Forests Initiative — Ghana 2023 progress report.*
Badji, A. C., & Baudin Sanchez, V. (2025, April 14). *Building a sustainable cashew sector in West Africa through data and collaboration.*

151 World Cocoa Foundation. (2023). *Cocoa & Forests Initiative — Ghana 2023 progress report.*

arrangements and financing instruments—that ensure forest ecosystems while ensuring equitable participation[152].

5.2. Principles to Guide Reform

The following recommendations follow a sequence ordered along five principles based on available evidence.

(A) Inclusion by design: Compliance should widen rather than narrow the range of smallholders who can sell into regulated markets; where risks have been uncovered, remediation rather than termination should be the norm[153].

(B) Public–private interoperability: National-level traceability and legality systems need to be harmonized and synchronized to buyer due diligence to avoid redundant reporting and platforms[154].

(C) Cost- and risk-sharing: Upstream actors who stand to gain from compliance should split multi-stakeholder onboarding costs, mapping, and remediation to avoid passing these costs on to poorer producers[155].

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[152] United Nations Conference on Trade and Development. (2023). *Commodities and development report 2023: Inclusive diversification.*
Zhuawu, C. (2025, April 16). *Sustainable trade at a crossroads: Sub-Saharan Africa and the EUDR*. Commonwealth Secretariat Blog.
ClientEarth (Taylor Crabbe & ClientEarth). (2023, July). *New EU and UK regulations on deforestation-free commodities: A lever for change in the cocoa sector in Ghana.*

[153]World Cocoa Foundation. (2023). *Cocoa & Forests Initiative — Ghana 2023 progress report.*

Addoah, T., Lyons-White, J., Cammelli, F., Kouakou, K. M. P., Carodenuto, S., Thompson, W. J., Renier, C., & Garrett, R. D. (2025). *Is the implementation of cocoa companies' forest policies on track to effectively and equitably address deforestation in West Africa? Sustainable Development, 33*(4), 5197–5213. https://doi.org/10.1002/sd.3380

[154] IDH – The Sustainable Trade Initiative. (2023). *Rolling out traceability and targeted investment in farmer groups and at processor level (Cashew projects / ComCashew; 3S under SNI).*
Badji, A. C., & Baudin Sanchez, V. (2025, April 14). *Building a sustainable cashew sector in West Africa through data and collaboration.*

[155] Be Slavery Free, & Mighty Earth. (2024). *Chocolate Scorecard 2024: Living income & human rights findings.*
Early, C. (2024*). More collaboration needed as cocoa firms battle deforestation and child labour risks*. Reuters Sustainable Business

(D) Jurisdictional logic: Company-level compliance in smallholder landscapes has to be nested within landscape-level strategies that harmonize incentives and keep track of results across all producers[156].

(E) Producer-country agency: Regional customs and national requirements (e.g., ARS-1000) should be incorporated in international due diligence as reliable, universally accepted guides[157].

Keeping these principles in consideration, I identify concrete policy and institutional steps to be taken by consumer-country regulators, producer-country governments, industry, and development partners.

5.3. Suggestions for Consumer-Country Regulators (EU, US, UK)

The evidence provides is that existing due-diligence frameworks, while necessary, are inadequate: they properly cover product risks such as deforestation and child labour but all too frequently transfer compliance burdens downstream and condone "de-risking by exclusion," particularly in cases involving indirect sourcing and fluctuating cooperation capacity. As lead standard-setters to the world's largest consumer markets, consumer-country regulators (e.g., working to the EUDR, CSDDD, UFLPA, and similar schemes) have at their disposal policy tools to reverse this trend—without narrowing environmental or human rights objectives, but by augmenting it through inclusion, interoperability, and investment. The aim of subsequent recommendations is thus to transition from avoidance at the level of individual firm to jurisdictional inclusion at scale: entering smallholders at scale, investing resources for remediation at risk areas identified, and respecting producer-country systems as equally vital components of compliance. These principles are:

A. Include reporting on inclusion in due diligence: Due-diligence reports should reveal at least: (i) proportion of smallholders enrolled into traceability systems; (ii) co-investment in cooperative infrastructures (workers trained, units distributed); (iii) remediation funding proposals; and (iv) living-

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[156]World Cocoa Foundation. (2023). *Cocoa & Forests Initiative — Ghana 2023 progress report.*

[157] Preferred by Nature, & European Forest Institute. (2025, January). *Developing legal frameworks and due diligence guidelines for cocoa production in West and Central Africa.* Preferred by Nature. https://preferredbynature.org/projects/developing-legal-frameworks-and-due-diligence-guidelines-cocoa-production-west-and-central

World Cocoa Foundation. (2023). *Cocoa & Forests Initiative — Ghana 2023 progress report.*

income gap investments where applicable. Reporting must be indicator-based (e.g., % of composite volume from mapped smallholders; average premium paid), facilitating firm-based benchmarking[158].

B. Acknowledge accredited national systems: The European Commission and United Kingdom authorities ought to disseminate guidance regarding the role of national traceability registries and regional standards (such as ARS-1000) in providing evidence for risk assessment and mitigation processes. This approach minimizes fragmentation across platforms and reduces compliance costs for cooperatives[159].

C. Embed financed remediation: Where risk assessments flag plots in post-cutoff conversion zones or tenure disputes, regulations should prefer financed remediation (assisted natural regeneration, income support during transition, tenure clarification) over supplier termination. Guidance should define acceptable remediation plans and co-funding expectations[160].

D. Address the deficiencies in commodity coverage through transitional assistance: Should cashew be incorporated into deforestation-free frameworks, it is advisable that a gradual strategy be implemented alongside onboarding financial resources for the purposes of mapping and preliminary land-use assessments to prevent abrupt exclusion[161].

E. Harmonize trade instruments: Such sustainability clauses in Economic Partnership Agreements should be made enforceable, in addition to technical assistance and finances accompanied by quantifiable onboarding and remediation targets[162].

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[158] Be Slavery Free, & Mighty Earth. (2024). *Chocolate Scorecard 2024: Living income & human rights findings.*
Addoah, T., Lyons-White, J., Cammelli, F., Kouakou, K. M. P., Carodenuto, S., Thompson, W. J., Renier, C., & Garrett, R. D. (2025). *Is the implementation of cocoa companies' forest policies on track to effectively and equitably address deforestation in West Africa? Sustainable Development, 33*(4), 5197–5213. https://doi.org/10.1002/sd.3380

[159] IDH – The Sustainable Trade Initiative. (2023). *Rolling out traceability and targeted investment in farmer groups and at processor level (Cashew projects / ComCashew; 3S under SNI).*
World Cocoa Foundation. (2023). *Cocoa & Forests Initiative — Ghana 2023 progress report.*

[160] ClientEarth (Taylor Crabbe & ClientEarth). (2023, July). *New EU and UK regulations on deforestation-free commodities: A lever for change in the cocoa sector in Ghana.*
World Cocoa Foundation. (2023). *Cocoa & Forests Initiative — Ghana 2023 progress report.*

[161] Badji, A. C., & Baudin Sanchez, V. (2025, April 14). *Building a sustainable cashew sector in West Africa through data and collaboration*
Mighty Earth. (2023, November 7). *The cashew conundrum: How global demand for superfood is driving nature loss and risking food security in Côte d'Ivoire*

[162] United Nations Conference on Trade and Development. (2023). *Commodities and development report 2023: Inclusive diversification*

5.4. Suggestions to Producer-Country Governments (Côte d'Ivoire and Benin)

The evidence from Benin (cashews) and Côte d'Ivoire (cocoa) is that domestic policy is the pivot between cleaner products and fairer chains. Where governments had invested in national traceability at scale, service-intensive processing clusters, and collective capacities, smallholders and local processors fared better at meeting foreign due-diligence requirements without being priced out. Where public goods were weak, firms de-risked by exclusion, with costs being charged to the weakest players and "untraced" volumes being left out of formality in the shadows. The objective with the recommendations below is thus neither to dilute environmental nor human-rights ambition, but to complement it with domestic institutions reducing unit cost, increasing inclusion and retaining more value at origin. The producer–country Governments should:

A. Improve and optimize national traceability systems: Create inclusive registries of farmers that incorporate mandatory data sets (farmer code ID, cooperative membership, location of plots or community centroid, and transaction history), and provide public–private interoperability standards to facilitate easy integration without needing double reporting[163].

B. Institutionalize remediation channels. Implement clear, government-backed remediation menus for impacted area farms: transition aid, alternative livelihoods, and community-based restoration. Create a Remediation Fund funded with contributions derived from levies collected by compliant exporting units, donations, and corporate cofinancing[164].

C. Develop regional standards: Include ARS-1000 in national regulatory schemes as a recognized baseline for compliance; distribute equivalence tables matching ARS-1000 criteria against EU/UK due diligence requirements to help operators[165].

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[163] Renier, C., Vandromme, M., Meyfroidt, P., Ribeiro, V., Kalischek, N., & zu Ermgassen, E. K. H. J. (2023). Transparency, traceability and deforestation in the Ivorian cocoa supply chain. *Environmental Research Letters, 18*(2), 024030.
IDH – The Sustainable Trade Initiative. (2023). *Rolling out traceability and targeted investment in farmer groups and at processor level (Cashew projects / ComCashew; 3S under SNI).*
World Cocoa Foundation. (2023). *Cocoa & Forests Initiative — Ghana 2023 progress report.*

[164] ClientEarth (Taylor Crabbe & ClientEarth). (2023, July). *New EU and UK regulations on deforestation-free commodities: A lever for change in the cocoa sector in Ghana.*

[165] Preferred by Nature, & European Forest Institute. (2025, January). *Developing legal frameworks and due diligence guidelines for cocoa production in West and Central Africa.* Preferred by Nature. https://preferredbynature.org/projects/developing-legal-

D. Invest in service-intensive clusters. Bring quality labs, OHS training, equipment maintenance, and data helpdesks within cocoa and cashew hubs to reduce small actors' per-unit compliance costs and hasten learning[166].

E. Inclusive procurement liquidity. Working capital lines inventory-backed that are available for cooperatives and processors meeting inclusive procurement requirements (e.g., proportion procured from enrolled smallholder farmers and use of transparent pricing formulae). Link public guarantees to quantifiable inclusion targets[167].

F. Gender-inclusive enabling regulations. Mandate cooperatives to register both partners when relevant and to establish leadership and training quotas for women, thereby guaranteeing that benefits and payments associated with traceability are directed to women producers and workers[168].

5.5. Suggestions to Industry and Certification Organizations

Throughout the cases, companies and standard-setters became keystone players: their buying habits, assurance programs, and information platforms chiefly decide whether due diligence yields at-scale onboarding or de-risking by exclusion. In Côte d'Ivoire's cocoa, tight traceability added to indirect sourcing and asymmetric cooperative capacities encouraged some buyers to condense supplier lists instead of funding inclusion; in Benin's cashew, fastidious processing expansion generated genuine prospects—particularly for women—but diffuse portals, duplicatory audits, and short-term contracting sent compliance expenses flowing downstream and divided the market by those who can internalize new demands and those left behind. The evidence is strong: certificate and corporate programs can support compliance (intercultural control systems, farm maps, CLMRS, grievance), but

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frameworks-and-due-diligence-guidelines-cocoa-production-west-and-central

World Cocoa Foundation. (2023). *Cocoa & Forests Initiative — Ghana 2023 progress report.*

[166] World Bank/IFC. (2025). *Agri-processing adds value in Côte d'Ivoire's cashew industry.*
AgDevCo. (2024, June 5). *Cashew Coast raises €9M to expand traceable organic cashew processing in Côte d'Ivoire.*
Enabel, & Trade for Development Centre. (2024). *Data training for cooperatives (coffee, cocoa, cashew): TDC annual report 2024.* Enabel. https://www.tdc-enabel.be/en/publications/annual-report-2024/

[167] World Bank/IFC. (2025). *Agri-processing adds value in Côte d'Ivoire's cashew industry.*
Ndyeshobola, A., & Mmari, D. (2023). *Building productive capacities – opportunities and constraints in the cashew nut sub-sector (REPOA Policy Brief PB 21/2023).* REPOA. https://www.repoa.or.tz/publications/building-productive-capacities-opportunities-and-constraints-in-the-cashew-nut-sub-sector/

[168] Solidaridad Network – West Africa. (2023). *Annual Report 2023* (gender and land rights initiatives).
World Bank/IFC. (2025). *Agri-processing adds value in Côte d'Ivoire's cashew industry.*

unless data are interoperable, fair-purchase clauses are equitable, and financed onboarding is possible, programs are extensive but selective. The aim of the recommendations below is not to dial back environment and/or human-rights ambition but to complete it—by aligning private governance with inclusion, income advancement, and producer-country protocols. The suggestions are:

1. From exclusionary de-risking to inclusion-based de-risking: Purchasers ought to use supplier-onboarding strategies involving targets for converting "untraced" farmers to mapped status, involving expenditures and timelines made public in due-diligence reports. Payments should be made to cooperatives for recruiting difficult-to-reach members[169].

2. Pooled compliance infrastructure. Rivals can partake in non-competitive infrastructures—mapping protocols, training materials, helpdesks—in industry-wide platforms (e.g., CFI) to decrease duplicative costs. Certification bodies can provide pooled services for first-time audits to decrease barriers to entry[170]

3. Compensate based on significant outcomes. Enhance premiums by incorporating conditional transfers linked to school attendance, agroforestry establishment, pruning, and safe labor practices—methods that correlate with quantifiable improvements in income and resilience[171]. Provide transparent disclosures regarding the proportion of volume associated with payments that facilitate a living income[172].

4. Acknowledge national systems and regional standards. Certification programs ought to disseminate crosswalks that align their criteria with ARS-1000 and national traceability in order to minimize audit redundancy and expedite the acknowledgment of equivalence[173].

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[169] Addoah, T., Lyons-White, J., Cammelli, F., Kouakou, K. M. P., Carodenuto, S., Thompson, W. J., Renier, C., & Garrett, R. D. (2025). *Is the implementation of cocoa companies' forest policies on track to effectively and equitably address deforestation in West Africa? Sustainable Development, 33*(4), 5197–5213. https://doi.org/10.1002/sd.3380

Renier, C., Vandromme, M., Meyfroidt, P., Ribeiro, V., Kalischek, N., & zu Ermgassen, E. K. H. J. (2023). Transparency, traceability and deforestation in the Ivorian cocoa supply chain. *Environmental Research Letters, 18*(2), 024030.

[170] IDH – The Sustainable Trade Initiative. (2023). *Rolling out traceability and targeted investment in farmer groups and at processor level (Cashew projects / ComCashew; 3S under SNI).*
World Cocoa Foundation. (2023). *Cocoa & Forests Initiative — Ghana 2023 progress report.*

[171] Nestlé. (2024). *Income accelerator program: Results and expansion*
Early, C. (2024*). More collaboration needed as cocoa firms battle deforestation and child labour risks*. Reuters Sustainable Business
[172] Be Slavery Free, & Mighty Earth. (2024). *Chocolate Scorecard 2024: Living income & human rights findings.*

[173] Preferred by Nature, & European Forest Institute. (2025, January). *Developing legal frameworks and due diligence guidelines for cocoa production in West and Central Africa.* Preferred by Nature. https://preferredbynature.org/projects/developing-

5.6. Recommendations to Development Partners and Multilaterals

The case evidence makes one thing certain: standards by themselves will not achieve fair, long-lasting inclusion unless accompanied by the appropriate public goods and risk-sharing. Smallholders and local processors in Côte d'Ivoire's cocoa and Benin's cashews were only able to comply with tightening requirements for due diligence when there were financed systems, interoperable ones at that, and locally owned ones (national traceability, service-intensive clusters around processing, professionalized cooperatives). Where those enablers were weak, companies de-risked through exclusion, compliance burdens were shifted downstream, and "untraced" volumes endured. Development partners and multilaterals occupy exactly the point where policy dialogue, concessional finance, and technical capacity can transform tough rules to scalable onboardings, financed remediation, and value retention at origin—without watering down environment and/or human-rights ambition. The partners should:

1. Finance public goods of compliance. Funding hybrid mapping (satellite + GPS ground truth), upgrade to a national registry, and public layers (protected areas, legal land categories). Open technical specifications to allow interoperability of private systems[174].

2. De-risk working capital. Make guarantees and warehouse-receipt facilities available to smoothen seasonal procurement on condition of inclusive sourcing and transparent payment to farmers[175].

3. Develop data and management capacity. Broaden training programs such as those reported by Enabel's Trade for Development Centre, to professionalize keeping records in cooperatives, cost accounting and reporting compliance[176].

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legal-frameworks-and-due-diligence-guidelines-cocoa-production-west-and-central
World Cocoa Foundation. (2023). *Cocoa & Forests Initiative — Ghana 2023 progress report.*

[174] IDH – The Sustainable Trade Initiative. (2023). *Rolling out traceability and targeted investment in farmer groups and at processor level (Cashew projects / ComCashew; 3S under SNI).*
Lang, J. (2024, June). 'Hybrid' mapping method key to EUDR cocoa compliance, study finds. *Mongabay*

[175] World Bank/IFC. (2025). *Agri-processing adds value in Côte d'Ivoire's cashew industry.*

[176] Enabel, & Trade for Development Centre. (2024). *Data training for cooperatives (coffee, cocoa, cashew): TDC annual report 2024.* Enabel. https://www.tdc-enabel.be/en/publications/annual-report-2024/

4. Advocate living-income measurement. Align back harmonized income-measurement standards (e.g., CHIS) to baseline and track living-income gaps at cooperative level in order to allow for targeted premium setting and policy interventions[177]

5.7. Monitoring, Evaluation, and Learning

Valid monitoring must move beyond inputs (training, hardware) to outputs and distributive effects. By this thesis's standards of measurement for success, a composite dashboard can track: Traceability coverage: proportion of volume originating in mapped farms; proportion of suppliers whose geolocation has been validated[178].

(A) Inclusion: share of smallholders onboarded; % of women registered as members/beneficiaries[179].

(B) Income: percentage living-income-gap bridged; percentage of volume experiencing living-income–enablement's [180].

(C) Compliance cost-sharing: $ per ton co-financed by buyers/donors for mapping/certification[181].

(D) Environmental outcomes: deforestation alerts within sourcing jurisdictions; hectares under agroforestry establishment[182]. Market access: percentage of cooperative members selling on compliant

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[177] Alliance on Living Income in Cocoa (ALICO). *(2024, April 29). Cocoa Household Income Study (CHIS) – Launch. Amsterdam Cocoa Week announcement.*

Be Slavery Free, & Mighty Earth. (2024). *Chocolate Scorecard 2024: Living income & human rights findings.*

[178] Renier, C., Vandromme, M., Meyfroidt, P., Ribeiro, V., Kalischek, N., & zu Ermgassen, E. K. H. J. (2023). Transparency, traceability and deforestation in the Ivorian cocoa supply chain. *Environmental Research Letters, 18*(2), 024030.

[179] Solidaridad Network – West Africa. (2023). *Annual Report 2023* (gender and land rights initiatives).
World Bank/IFC. (2025). *Agri-processing adds value in Côte d'Ivoire's cashew industry.*

[180] Be Slavery Free, & Mighty Earth. (2024). *Chocolate Scorecard 2024: Living income & human rights findings.*
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[181] IDH – The Sustainable Trade Initiative. (2023). *Rolling out traceability and targeted investment in farmer groups and at processor level (Cashew projects / ComCashew; 3S under SNI).*
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[182] Parra-Paitán, C. A., Meyfroidt, P., Verburg, P. H., & zu Ermgassen, E. K. H. J. (2024). Deforestation and climate risk hotspots in the global cocoa value chain. *Environmental Science & Policy, 158,* 103796. https://doi.org/10.1016/j.envsci.2024.103796

channels; premiums realized[183]. Independent evaluations—by universities or multilateral agencies—should audit datasets annually, publish methods, and solicit farmer-level feedback through structured surveys to compensate for the limits of document-based analyses.

5.9. Limitations and Research Needs

This thesis has drawn on secondary evidence; though triangulated across legal texts, policy reports, academic research studies, and NGO reports, it could not be substantiated at ethnographic depth through fieldwork. Open questions of importance include: how compliance cost burdens get distributed within household units; how compliance-driven agroforestry in cocoa and expansion of orchard area in cashew have long-run agronomic effects; and how alternative contracting structures (e.g., long-term open-book versus spot) moderate risk sharing? High-priority research comprises panel data on household incomes and land use pre- and post-onboarding; RCTs on a range of premium and cash-transfer designs; and comparative studies on governance effectiveness and legitimacy between national traceability system functioning.

5.10. Concluding Note: Completing, Not Diluting, Due Diligence

It's not about relaxing standards but finishing them. Environmental integrity is a non-negotiable; it should be accompanied by institutional arrangements that keep smallholders in the market on better terms. What can be learned from the successful cashew industrialization of Côte d'Ivoire is what aligned policy, financing, and services can achieve—the generation of jobs, better prices, professionalized associations[184]. Vegetoleasing in West African cocoa demonstrates how traceability and firm commitments can spread fast when coordination platforms are available[185].

World Cocoa Foundation. (2023). *Cocoa & Forests Initiative — Ghana 2023 progress report.*

[183] Bojang, B., & Emang, D. (2024). Can cashew value chain industry improve food security? Empirical study from The Gambia. *Sustainability, 16*(15), 6607. https://doi.org/10.3390/su16156607

Akande, Y. B., Tijani, A. A., Kehinde, A. D., & Oyenpemi, L. O. (2023). Impact of compliance with EU regulations on cocoa supply chain income. *Sustainable Futures, 6,* 100120. https://doi.org/10.1016/j.sftr.2023.100120

[184] World Bank/IFC. (2025). *Agri-processing adds value in Côte d'Ivoire's cashew industry.*

[185] World Cocoa Foundation. (2023). *Cocoa & Forests Initiative — Ghana 2023 progress report.*

Regional standards such as ARS-1000 evidence the ability of producing nations to formalize sustainability on their own ground[186]. If receiving authorities in consumer nations accept domestic systems, if firms make inclusion and correction core aspects of compliance, and if governmental institutions and donors deliver public goods facilitating traceability and capacity development, then due diligence can be performed effectively both for agricultural producers and forests. These reforms sketched below—if implemented based on empirical evidence examined in this dissertation—are a realistic solution toward a global agricultural economy in which deforestation is averted with certainty, and in which people involved in producing cocoa and cashew enjoy equal market entry, better incomes, and a significant say in regulation impacting livelihoods (UNCTAD, 2023; ICCO, 2023; Parra-Paitán et al., 2023, 2024; Renier et al., 2023; ClientEarth, 2023; Badji & Sanchez, 2025)[187]

Conclusion

This thesis explores how western-style international regulatory schemes set for high-income consumer markets reshape smallholder farmers' livelihoods in West Africa's cocoa and cashew industries. Centered on Côte d'Ivoire (cocoa) and Benin (cashew), with comparative references to Brazil and India, it inquires how prevailing regulation can be reshaped to ensure environmental safety while facilitating equitable economic engagement. The fundamental hypothesis cautions that prevailing regimes primarily mirror risk concerns of consumer countries and, in the absence of conscious institutional conception, can hardwire producer-side impediments.

Methodologically, the study employs a mixed approach: documentary and legal analysis of due-diligence and market-access rules; review of trade agreements; critical appraisal of certification and

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Early, C. (2024*). More collaboration needed as cocoa firms battle deforestation and child labour risks*. Reuters Sustainable Business.

[186] World Cocoa Foundation. (2023). *Cocoa & Forests Initiative — Ghana 2023 progress report.*

[187] United Nations Conference on Trade and Development. (2023). *Commodities and development report 2023: Inclusive diversification.*
ClientEarth (Taylor Crabbe & ClientEarth). (2023, July). *New EU and UK regulations on deforestation-free commodities: A lever for change in the cocoa sector in Ghana.*
Parra-Paitán, C. A., zu Ermgassen, E. K. H. J., Meyfroidt, P., & Verburg, P. H. (2023). Large gaps in voluntary sustainability commitments covering the global cocoa trade. *Global Environmental Change, 81*, 102696. https://doi.org/10.1016/j.gloenvcha.2023.102696
Renier, C., Vandromme, M., Meyfroidt, P., Ribeiro, V., Kalischek, N., & zu Ermgassen, E. K. H. J. (2023). Transparency, traceability and deforestation in the Ivorian cocoa supply chain. *Environmental Research Letters, 18*(2), 024030.
International Cocoa Organization. (2023). *ICCO 50th anniversary declaration.*

private governance; and desk-based scrutiny of national policy frameworks, all synthesized through structured cross-case comparison. This maps the compliance architecture now consolidating around deforestation-free trade, human-rights due diligence, and traceability.

Four lessons are gleaned. First, compliance systems track—and sometimes exacerbate—market power: well-equipped cooperatives overcome geolocation and audit obstacles, while indirect or "untraced" producers risk discounting or exclusion. Second, environmental due diligence without income instruments is fragile; where poverty and volatility endure, compliance costs devolve upon downstream actors unless accompanied by living-income premia, cash-for-practice incentives, or long-duration contracts. Third, private standards are pervasive but incomplete: certification supports traceability and grievance procedures but remains expensive and patchy in coverage. Fourth, common, domestically controlled systems—national registries, sectoral platforms of data, compliance-compatible processing clusters, and recognition of producer standards—reduce costs on a smaller scale, increase inclusion, and disproportionately enhance employment of women.

The thesis provides a legal-political economy prism connecting micro compliance mechanisms to bargaining power and rent allocation; an empirical integration of regulatory impacts; a repeatable framework for judging regulatory fairness; and a politically feasible reform agenda focused on interoperability, inclusion indicators, financed remediation, shared compliance infrastructure, customized working-capital, and producer-country standards recognition. Its limitations are over-reliance on secondary sources, changing legal advice, geographical limitations, difficulties with attribution, and diverse source quality. Policy implications are unambiguous: transition from "de-risking by exclusion" to "de-risking by inclusion," and from firm-level corrections to jurisdictional fixes rooted in national systems. Further research needs to put numbers on inclusion economics and compliance finance, judge remediation routes, explore traceability governance and gendered effects, and experiment with trade-law architectures that endure inclusion. The study finishes with a roadmap: full—not watering down—due diligence by integrating inclusion, income, and producer-country recognition as equal pillars of good trade.

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