Star4bbs

The Impact of Sustainability Certification Schemes and Labels on Market Access and Trade

A STAR4BBS – White Paper

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Executive Summary

The integration of sustainability requirements into global trade has become a decisive factor for fair, transparent and environmentally responsible economic growth. Sustainability Certification Schemes and Labels (CSLs) play a central role in this transformation. They are voluntary, market-based instruments designed to verify compliance with environmental, social and economic criteria and to ensure responsible production along global value chains. Within the European Union, certification has evolved from a technical verification tool into a key regulatory and competitive mechanism embedded in frameworks such as the EU Bioeconomy Strategy, the Circular Economy Action Plan and the EU Strategy on Standardisation, as well as the European Green Deal, the Ecodesign for Sustainable Products Regulation (ESPR) and the Corporate Sustainability Reporting Directive (CSRD).

However, the rapid proliferation of certification schemes has created a fragmented landscape. Public, private and multi-stakeholder initiatives differ in scope, methodology and transparency, resulting in overlapping requirements and high transaction costs. For smallholders and SMEs, particularly in developing economies, certification can become administratively demanding and financially burdensome. While designed to enable sustainable trade, it can under certain conditions act as a barrier to market entry.

The European Union is among the world's largest importers of bio-based feedstocks such as cotton, wood, sugar cane, palm oil and rapeseed. Certification coverage across these commodities remains uneven: while palm oil and cotton are relatively well covered, crops such as maize, wheat and sugar beet remain largely uncertified. This heterogeneity makes trade monitoring difficult, and reduces the transparency of global supply chains.

A systematic literature review of 21 quantitative studies provides new insights into the trade impacts of CSLs. The findings show that certification effects are highly context-dependent. In environments with strong institutions and governance systems, certification enhances trade performance by improving product quality, signalling reliability and reducing information asymmetries. In contrast, in settings with weak institutions or limited producer capacity, certification may lead to exclusion from global markets. Value distribution along supply chains is also uneven, with some cases showing that downstream actors capture most of the financial benefits, while producers incur in the bulk of compliance costs.

To address these challenges, this white paper identifies four strategic action areas:

- Strengthen governance and institutional capacity to enhance oversight, harmonisation and mutual recognition of standards.
- Support smallholders and SMEs through financial assistance, group certification and digital traceability tools.
- Promote fair and transparent value chains with shared-responsibility mechanisms and equitable cost-sharing.

- Improve data availability and interoperability to build an evidence-based foundation for policy and trade decisions.

By implementing these measures, policymakers and industry leaders can ensure that certification becomes an instrument of inclusion rather than exclusion. The European Union and its partners are well positioned to lead this transition through coordinated global action. If effectively governed, sustainability certification can move beyond compliance to become a strategic catalyst for fair, competitive and sustainable trade in the bio-based economy.

1 Introduction and Background

In an increasingly interconnected global economy, the integration of sustainability requirements has become a decisive factor for fair, transparent and environmentally responsible trade. Sustainability Certification Schemes and Labels are voluntary, market-based instruments that verify compliance with environmental, social and economic criteria. They aim to ensure responsible production along global value chains while fostering transparency, trust and traceability among producers, businesses, policymakers and consumers.

Within the European Union, sustainability certification is embedded in major strategic frameworks such as the EU Bioeconomy Strategy, the Circular Economy Action Plan and the EU Strategy on Standardisation. Certification has evolved from a purely technical proof of sustainable production into an important economic and regulatory mechanism that increasingly shapes competitiveness and market access.

However, the rapid proliferation of certification schemes has resulted in a fragmented and overlapping landscape. Numerous public, private and multi-stakeholder initiatives differ in scope, methodology and transparency. While this diversity stimulates innovation, it also generates high transaction costs, limited comparability and confusion among market participants. For smallholders and small and medium-sized enterprises (SMEs), particularly in developing and emerging economies, certification can be costly and administratively demanding. What was originally intended as an enabler of sustainable trade can, under certain conditions, become a barrier to market entry.

This dual nature of certification as both facilitator and constraint lies at the centre of current policy debates. Certification can open markets by building confidence and demonstrating compliance with sustainability norms, but it can also restrict access where requirements are complex or institutional capacity is weak. Realising its full potential requires coordinated action, including greater harmonisation across standards, stronger institutional capacities and enhanced international cooperation.

Against this background, the present white paper expands on the content of the STAR4BBS brochure by providing a deeper analysis of how sustainability certification influences market access and trade in bio-based sectors. It synthesises empirical evidence, identifies the conditions under which certification supports or hinders trade, and translates these insights into practical recommendations for policymakers and industry stakeholders.

2 Trade Flows of Biogenic Feedstocks — Highlights

The European Union is one of the world's largest importers of biogenic feedstocks, which form the foundation of its growing bio-based economy. Key commodities include cotton, wood, sugar cane, palm oil, rapeseed, sunflower, maize, wheat and sugar beet, sourced mainly from India, Brazil, the United States, Indonesia, China and Norway. These feedstocks underpin a wide range of value chains, from textiles and packaging materials to biofuels and bioplastics, making sustainable sourcing an essential element of EU trade and environmental policy.

However, the sustainability conditions under which these commodities are produced vary considerably across countries. Production systems, institutional capacities and governance frameworks differ widely, resulting in heterogeneous certification landscapes. Alongside internationally recognised schemes, such as RSPO, ISCC, Bonsucro, FSC and PEFC, numerous national and regional standards operate in parallel. Many of these are only partially aligned or mutually recognised, which complicates the assessment and traceability of certified material entering the EU market.

This fragmentation has direct implications for trade and competitiveness. Exporters often face overlapping certification requirements that increase transaction costs and administrative burdens. Smallholders and SMEs are particularly affected, as they may have to comply with multiple audits to satisfy different buyers or regulatory systems. In the absence of harmonised recognition frameworks, certification can therefore create market inefficiencies increased costs and reinforce structural barriers.

Available data also show striking differences in global certification coverage across bio-based feedstocks:

Feedstock	Estimated certified share (global, %)	Main certification schemes
Cotton	~33%	Better Cotton Initiative, Organic Cotton
Wood	5–10%	FSC, PEFC
Sugar cane	5–10%	Bonsucro, ISCC (< 0.5%)
Palm oil	15–20%	RSPO, ISCC
Rapeseed	~19%	ISCC
Sunflower	~2%	ISCC
Maize	~0.8%	ISCC
Wheat	~0.4%	ISCC
Sugar beet	<0.1%	ISCC

These figures illustrate that sustainability verification remains highly uneven and sector-specific. In some sectors, such as palm oil, coffee or timber, certification has effectively become a prerequisite for EU market access, while in others it remains voluntary and marginal. Data gaps and inconsistent reporting further hinder a clear understanding of certified versus non-certified trade flows.

These patterns highlight the need to better understand how CSLs affect market access and trade outcomes across sectors and governance contexts. The following chapter examines this relationship based on available quantitative evidence.

3 Impact Assessment: Effects of Sustainability Certification on Market Access and Trade

3.1 Evidence Base

To assess how Sustainability Certification Schemes and Labels influence market access and trade, a systematic literature review was conducted following the PRISMA framework. The review synthesised quantitative evidence on the relationship between certification and trade performance across sectors and countries.

A total of 563 publications were initially identified across major academic databases. After title and abstract screening, 80 studies were reviewed in full, and 21 quantitative analyses met the inclusion criteria. Of these, 12 focused on country-level impacts—examining aggregate export performance and institutional determinants—while nine assessed firm-level outcomes, such as changes in export revenues, market diversification or competitiveness following certification.

The studies covered a broad range of certification systems, including voluntary private schemes (e.g. Fairtrade, GlobalGAP, Rainforest Alliance), multi-stakeholder initiatives (e.g. RSPO, Bonsucro) and mandatory frameworks (e.g. ISO, EU RED). This diversity reflects the complexity of global certification systems and the multiple mechanisms through which standards can affect trade.

In terms of sector, the evidence base is dominated by agricultural commodities, such as fruit, coffee and cocoa. Fewer studies focus on industrial or forest-based value chains. This mirrors the origins of sustainability certification in agri-food sectors and highlights a research gap for emerging bio-based industries. Methodologically, the studies apply gravity models, panel regressions and firm-level econometric analyses to measure certification impacts on trade volumes, export probabilities and market access conditions. Across these approaches, a consistent conclusion emerges: certification effects are context-dependent and not uniformly positive or negative.

The following sections summarise the main empirical patterns and their underlying determinants (Section 3.2) and examine distributional dynamics along value chains (Section 3.3).

Empirical evidence shows that Sustainability Certification Schemes and Labels can act both as a catalyst and a constraint for trade. Across the 21 quantitative studies reviewed, eight report clear positive impacts, four identify negative effects and nine find mixed or context-dependent results. Certification is therefore neither inherently trade-enhancing nor trade-restricting; its effects depend on governance quality, sectoral structure and firm-level capabilities.

Positive Trade Effects

In supportive institutional environments, certification enhances trade performance by improving product quality, signalling reliability and building trust between exporters and buyers. It reduces information asymmetries and can lower transaction costs, especially where reputational credibility is critical. Studies show, for example, that GlobalGAP-certified horticultural exporters from Africa and Latin America achieve higher export volumes and more stable buyer relationships (Fiankor et al., 2019, 2020), while ISO-certified firms in developing countries demonstrate greater export diversification and improved access to high-value markets (Masakure et al., 2009). At the macro level, alignment with internationally recognised standards fosters harmonisation, facilitating bilateral trade and reducing technical barriers.

Negative or Neutral Trade Effects

Certification can hinder trade when compliance costs outweigh potential benefits. Smallholders and SMEs often face disproportionate certification expenses, limited access to finance and complex administrative requirements. In weak institutional contexts, certification may lead to market exclusion rather than inclusion (Schuster & Maertens, 2015; Meemken, 2020). In mature sectors such as palm oil or cocoa, certification has become a de facto market entry requirement, ensuring access but offering limited competitive advantage. Downstream actors frequently capture most of the value added, while producers experience certification primarily as a cost of doing business.

Determinants of Impact

Three structural factors consistently explain variations in outcomes:

1. **Governance and institutional quality**: Certification is most effective where institutions are strong, transparent and supported by technical assistance.
2. **Sectoral context**: Trade-enhancing effects are concentrated in consumer-facing sectors such as fresh produce, cocoa and coffee, while industrial feedstocks show weaker impacts.
3. **Firm-level capabilities**: Larger, export-experienced firms are better equipped to absorb costs; smaller ones benefit mainly from collective or supported certification schemes.

These findings indicate that the impact of CSLs on trade depends less on the existence of a standard itself than on the enabling environment in which it operates. The next section explores how these dynamics translate into distributional and value chain effects.

3.2 Distributional and Value Chain Effects

While Sustainability Certification Schemes and Labels can improve export performance and facilitate access to high-value markets, the distribution of economic benefits along global value chains remains uneven. Evidence shows that downstream actors such as processors, traders and retailers capture a disproportionate share of the gains, while producers and smallholders often bear most of the compliance costs.

Research indicates that the financial premiums associated with certification rarely reach producers (Anders & Caswell, 2009; Molenaar, 2022). These benefits are typically absorbed downstream, where branding and marketing generate higher margins. In sectors such as palm oil, cocoa and timber, certification has become a basic entry requirement rather than a competitive advantage, leading producers to perceive certification primarily as a cost.

Smallholders and SMEs face particular challenges. Limited access to finance, credit and training often prevents them from obtaining or maintaining certification. Group certification models, in which several producers share audit and administrative costs, can improve inclusion and cost efficiency (Bolwig et al., 2009). However, their success depends on local governance, buyer recognition and technical support.

Unequal value capture poses a structural risk to the legitimacy of certification systems. If upstream actors view certification as economically disadvantageous, participation declines, undermining both environmental goals and market credibility. Policymakers and industry stakeholders should therefore promote shared-responsibility models that allocate costs more fairly and ensure that sustainability premiums reach producers. This requires improved price transparency, co-financing arrangements with buyers, targeted financial and technical support for smallholders, and the integration of social impact indicators into certification monitoring.

Achieving fairer outcomes requires embedding certification within broader trade and development strategies that prioritise inclusiveness and equity. Certification should evolve from a compliance obligation into a shared investment in sustainable trade, aligning environmental integrity with economic fairness. The next chapter translates these findings into actionable policy and industry recommendations.

4 Policy and Industry Recommendations

The findings of this assessment show that Sustainability Certification Schemes and Labels influence market access and trade performance in complex and context-specific ways. Their impact depends largely on governance quality, institutional capacity and the structure of global value chains. To ensure that certification serves as a driver of inclusive and sustainable trade, coordinated action is required across policy, industry and international partners.

4.1 Strengthen Governance and Institutional Frameworks

Effective certification systems rely on clear rules, strong institutions and credible enforcement mechanisms. Governments in exporting countries, supported by international cooperation, should align sustainability policies and certification systems to prevent duplication and conflicting requirements. Institutional capacity for monitoring, data management and audit oversight must be strengthened to enhance transparency and credibility.

The BIOBASEDCERT Monitoring Tool (BMT), developed within the STAR4BBS project and BIOBASEDCERT cluster, provides policymakers and certification bodies with a structured mechanism to benchmark the robustness, comprehensiveness and effectiveness of CSLs against EU sustainability objectives. It supports harmonisation and continuous improvement by facilitating cooperative benchmarking rather than narrow compliance checks.

Harmonisation and mutual recognition of standards should be promoted to reduce transaction costs and facilitate cross-border trade. Integrating certification into national trade and development strategies can connect sustainability verification with innovation, competitiveness and rural development. The European Union and its partners can play a catalytic role by providing technical assistance, training and infrastructure to support implementation.

4.2 Support Smallholders and SMEs

Smallholders and small and medium-sized enterprises face disproportionately high costs and administrative burdens when meeting certification requirements. Without targeted support, they risk exclusion from global value chains that increasingly demand certified materials. Financial assistance through grants, soft loans or guarantees can help offset certification and audit costs.

Promoting group certification models can reduce per-unit expenses and simplify compliance, while digital traceability tools can ease documentation demands. Strengthening producer cooperatives and local institutions through training and extension services further enhances participation. Certification frameworks should also recognise bio-attributed approaches under the Mass Balance Approach (MBA) to enable flexible participation and smoother transition pathways. These measures can transform

certification from a compliance challenge into a pathway for inclusion and capacity development.

4.3 Promote Fair and Transparent Value Chains

For certification to remain credible and effective, economic benefits must be distributed more equitably along value chains. Price transparency and contractual fairness are essential, especially in clarifying how certification costs and premiums are shared. Shared-responsibility models, in which buyers and retailers co-finance certification and training, can strengthen producer incentives.

Social indicators such as income distribution, labour rights and gender equality should be integrated into certification monitoring frameworks. Public procurement and corporate sourcing policies can reward fair and sustainable production practices, supporting long-term resilience and trust in certified supply chains.

4.4 Improve Data Availability and Learning

Reliable and harmonised data are essential to monitor certification coverage, identify gaps and design effective policy responses. At present, information on certified and non-certified trade flows remains fragmented and inconsistent across schemes. Developing open, standardised reporting frameworks for certification data by commodity, origin and trade route would improve comparability.

Data interoperability between major certification systems such as ISCC, RSPO, FSC and Bonsucro should be enhanced, while independent evaluations of certification impacts would strengthen evidence and credibility. The web-based version of the BMT allows stakeholders to visualise and compare certification performance through clear, interactive outputs. It helps identify data gaps, overlaps and opportunities for alignment across schemes. By promoting data interoperability and transparency, the BMT supports evidence-based policy design and informed decision-making in the bio-based economy. Establishing international learning platforms could further connect policymakers, researchers and standard-setters for continuous exchange and improvement.

4.5 Foster Coherent Global Action

The European Union and its partners can lead global efforts to build a more coherent and inclusive certification landscape. This includes advancing mutual recognition and alignment of standards, integrating certification capacity-building into trade and development cooperation, and ensuring that future trade agreements include transparent and development-friendly sustainability verification mechanisms. Joint initiatives for data sharing and knowledge exchange can further support evidence-based policymaking. Through such coordinated action, sustainability certification can evolve from a technical compliance tool into a strategic enabler of sustainable and inclusive trade, strengthening competitiveness and trust across the bio-based economy.

Conclusions

This white paper examined how Sustainability Certification Schemes and Labels influence market access and trade in the bio-based economy. The analysis shows that certification is neither inherently trade-enhancing nor trade-restricting. Its effects depend on the governance quality, institutional context and structure of global value chains in which it operates.

Empirical evidence demonstrates that certification can facilitate trade by improving transparency, reducing information asymmetries and signalling compliance with sustainability and quality standards. In such settings, it acts as a catalyst for competitiveness, innovation and access to high-value markets. However, where institutional capacity is weak, certification may impose prohibitive costs and administrative burdens, particularly on smallholders and small and medium-sized enterprises. In these cases, what is designed as a mechanism for inclusion can inadvertently reinforce exclusion.

The distribution of economic benefits along value chains remains highly uneven. Downstream actors capture the majority of value added, while primary producers bear a disproportionate share of compliance costs. This imbalance threatens both the legitimacy and long-term effectiveness of certification systems. Fairer cost- and benefit-sharing models, stronger institutional support and improved data transparency are essential to ensure that certification contributes to equitable and sustainable trade outcomes.

The findings underline four central priorities for future policy and industry action:

1. Strengthen governance and institutional frameworks to enhance credibility and reduce fragmentation.
2. Support smallholders and SMEs through targeted finance, training and cooperative structures to improve inclusiveness.
3. Promote fair and transparent value chains with shared-responsibility approaches and equitable premium distribution.
4. Improve data comparability and interoperability across certification schemes to enable evidence-based policymaking.

Achieving these objectives requires coordinated global action. The European Union and its partners can play a leadership role in harmonising standards, fostering capacity-building and integrating sustainability verification into trade and development cooperation.

Ultimately, sustainability certification can evolve from a compliance mechanism into a strategic catalyst for fair, transparent and sustainable trade. This transformation depends on collective commitment—anchored in robust governance, data transparency and shared responsibility across all actors in the bio-based value chain.

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"Sustainable bio-based systems via effective certification & labelling"

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