THE FUTURE OF COFFEE CERTIFICATIONS

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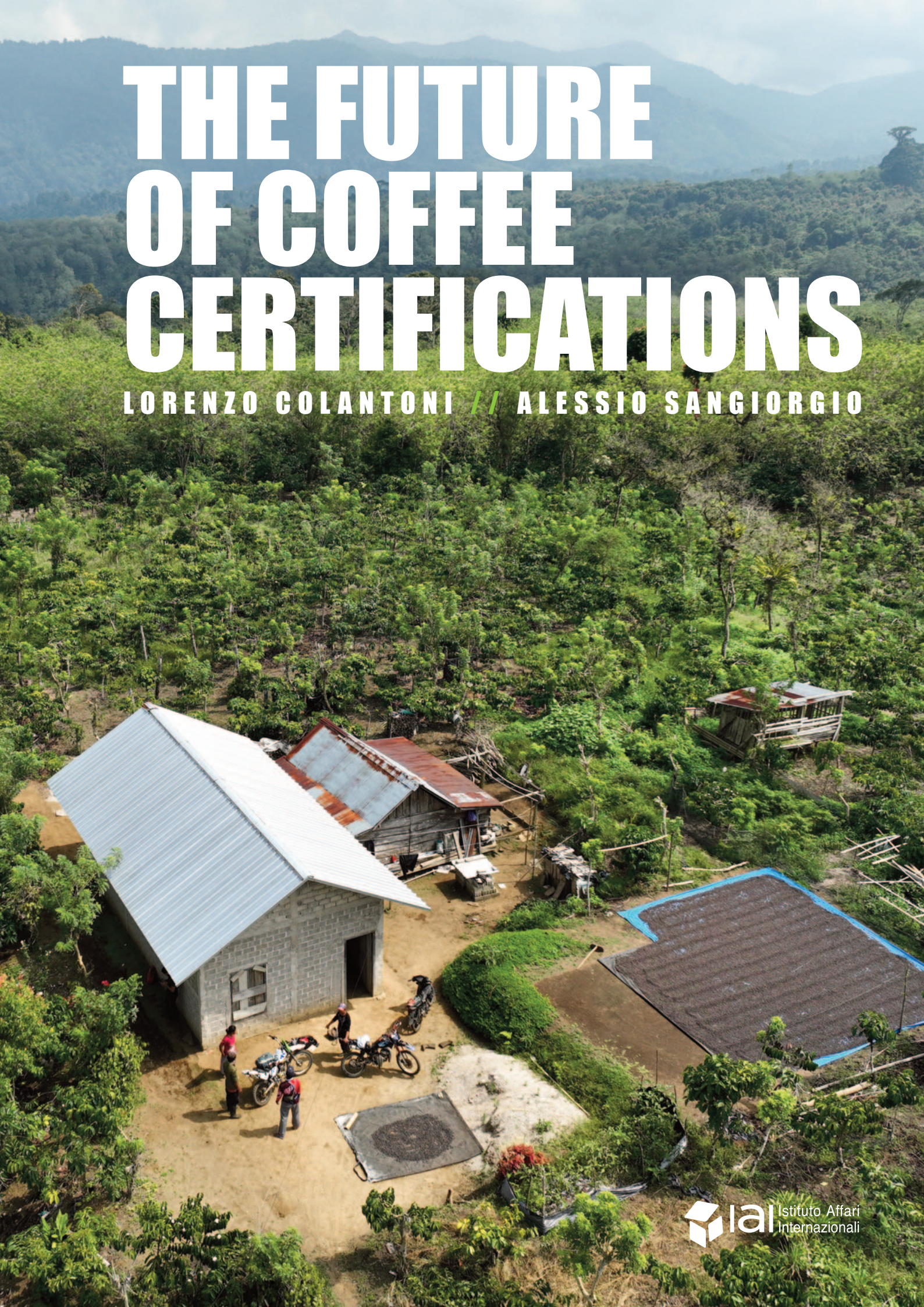

Istituto Affari Internazionali

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Main findings

Certifications have been a cornerstone of the coffee trade at a global level for decades. They have been crucial tools in spreading awareness about the need for an ethical and sustainable production of coffee, among consumers throughout the world. Coffee certifications been served to develop and support agricultural methodologies to boost production and reduce its impact on ecosystems, while helping some of the most fragile among farmers. They have been pioneers in tracing agricultural commodities, also in times when the availability of technologies and data was extremely limited. To some extent, it is true that, without the prior work of independent certification schemes, ambitious legislation such as the EU Deforestation-Free Regulation (EUDR) might not have been possible.

And yet, coffee certifications are now passing through one of the most delicate and challenging periods they have ever faced, due to a combination of economic, regulatory and even social factors – particularly the current high prices, the launch of the EUDR and a changing consumer interest in certified coffee. Indeed, the present challenges come after a few years in which markets, consumption and production have been changing, with a deep impact on certifications. For several schemes, these new developments could be a wake-up call to deliver changes necessary to finally expand their reach in some cases, or to avoid disappearing in others. A significant involvement in EUDR compliance, a better understanding of current consumer interest and a greater focus on supporting farmers could all be key elements for designing a new, expanded role for certifications in the coffee sector.

This research first analyses main features of coffee certifications (Overview) and their interactions with the coffee market (Status of the market and its influence over certifications). It then discusses their current status: the challenges they face (Status of certifications) and their interaction with the EUDR (Impact of the EUDR on certifications). Finally, it focuses on elements of success for the future (Future of certifications). While the main findings are listed below, the Methodology and reading guide section describes the research approach, the interviews and work conducted in the field.

Overview

Certifications have existed since the late 1980s/early 1990s, although they started to become a global, mainstream presence circa a decade later (see section 2.1 Main features of certifications). Initially, certifications were designed as a way to address negative externalities of the coffee trade or unethical behaviours, such as deforestation (as in the case of Rainforest Alliance) or low wages and labour rights violations (Fairtrade). As a consequence, early schemes maintained a strong focus on specific issues, with some going so far as to focus on protecting specific habitats, as in the case of the Smithsonian Bird Friendly certification. However, in more recent times schemes have expanded their scope and, while

still maintaining part of their original focus, they have also extended to cover other, related issues – almost all schemes now concentrate on fair remuneration and environmentally sustainable production (see section 2.5 Focal areas of certification: Environment, human and labour rights, and quality).

Certifications have traditionally been run by independent organisations, in most cases belonging to civil society, although the landscape has been changing in the past decade (see section 2.3 Kinds of certification: Civil society, public, private sector). The number of independent, civil-society-led schemes has decreased, also thanks to a consolidation process and the incorporation of the label UTZ into Rainforest Alliance; major certifications remain Fairtrade, 4C, Rainforest Alliance and Organic. Company-led schemes have instead proliferated, and the picture is quite varied; several strongly focus on supporting farmers and on improving the sustainability of production, but in most cases the schemes are run internally with no third-party auditing, thus limiting their actual impact. This is however not the case for other, more structured schemes, such as Starbucks' C.A.F.E. Practices.

Status of the coffee market and its influence over certifications

Certifications are significantly affected by changes in the global coffee market. Prices are the main factors to consider (see section 3.1 Coffee prices and global balance between supply and demand); indeed, when coffee prices are high, certifications' benefits are less appealing, while when prices are low, farmers' lowered income reduces their ability to invest in converting production and paying scheme fees. Additionally, the cyclical nature of coffee harvests creates higher financial risks to invest in certifications without having the guarantee of stable returns. Prices and voluntary schemes are also being shaped by other trends, such as growing demand in middle-income countries (such as India and China), where a new coffee culture is rapidly developing, but attention to issues traditionally addressed by certifications is weaker.

Climate-induced disasters are also influencing the market, affecting harvest and creating ideal conditions for destructive diseases and pests (see section 3.2 Climate change impact). In this sense, climate change has also shaped how established certifications are addressing environmental protection and social issues, with schemes proposing new strategies to face the sector's need to adapt to a changing climate.

Significant regional differences persist in the market and in how different countries relate to certifications (see section 3.3 Regional trends): Latin America remains the largest area of origin of certified coffee, while Asia has seen a rapid increase in certification-compliant coffee, especially in producers like Vietnam, characterised by a large number of small but high-yielding farms. At the same time, other players – especially India and China – are less susceptible to adopting

certifications, seeing limited benefits in them. In Africa, the sector remains substantially impacted by structural economic challenges, even if certain producers, such as Ethiopia, have reached a high degree of sustainable production.

Status of certifications

Certifications are now going through a period of change and challenge (see section 4.1 Overview: The evolution of certifications in recent years), which affects their capacity to grow and reach consumers – indeed, in the past five years the total amount of areas harvested and then sold as certified production has been declining, instead of growing. Two concomitant trends have become evident: while the sales of certified coffee have indeed decreased, the total amount of land that can be potentially sold as certified has increased (see section 4.1 Overview: The evolution of certifications in recent years).

This is the result of a few crucial trends that are significantly affecting certifications and the coffee sector. First, consumers are changing their attitude towards certified coffee (See section 4.2 A stable or decreasing consumer interest in certified coffee); sales have been fluctuating in most cases, despite a coffee demand that has been more or less steadily growing in the past decade. This situation has been likely caused by a series of factors, particularly high inflation and increasing cost of living in key regions, structure of demand growth, "label fatigue" against sustainable claims, and changed consumer perception of certified coffee.

Price fluctuations have also significantly impacted certifications (see section 4.3 Price fluctuations), particularly the current spike. Coffee prices have indeed reached the unprecedented level of US $4.40/lb for arabica futures, with an equally remarkable increase for robusta. This situation has been caused primarily by adverse weather conditions in Brazil and Vietnam, the world's first two producers, but comes after a steady build-up of prices, which has been influenced also by other factors: growing costs for energy and agrochemicals, a surge in labour costs across most producing regions, and above all the increasingly evident impact of the climate crisis on the coffee sector. Some of these elements are likely to stay, and their influence on certifications is already evident: while putting economic pressure on organisations (often financially strained), the price increases also limit their capacity to use some of their most effective tools to retain farmers, such as the price premium. However, price fluctuations to some extent also empower the role of certification organisations, as part of their work is indeed to shield farmers from excessive variations (as the current upward trend could become a downward one).

Finally, some certification schemes have been facing issues in delivering some of their crucial objectives, particularly an evenly distributed price premium, keeping a good balance between expanding their reach and keeping their stan-

dards high, as well as maintaining a good accessibility to schemes for farmers (see section 4.4.3 Keeping certifications accessible to farmers). The debate about the redistribution of the price premium has been particularly intense among analysts and players of the sector. Indeed, schemes have been sometimes accused of being unable to deliver a substantial share of the price premium to farmers; this allegation is however complicated to prove, since part of the premium is employed in investments that should directly or indirectly help them, such as infrastructural improvements, but whose benefit it is often hard to quantify.

Maintaining the balance between expanding the reach of certifications and keeping high sustainability and ethical standards has also been a complicated exercise for certification labels: it was particularly complex in the late 1990s and early 2000s, when historic schemes such as Fairtrade switched from being minor operations connecting cooperatives to consumers, to mainstream projects also dealing with plantations and major intermediaries. Keeping a good reputation has however proved crucial also in recent years to both counteract the few scandals that have touched the certification sector, and the growing competition between independent certifications and the new private, in-house schemes run internally by companies.

Impact of the EUDR on certifications

Even if, at the time of writing, the EUDR has not yet been applied (the expected date being December 2025) and uncertainty is still high following the one-year delay in its application (European Parliament 2024), it is already clear that it will have a significant impact on certifications; although it is a European Regulation which will only affect EU imports, it will indeed significantly affect the global market due to the relevance of European demand (circa a third of the global total) (CBI 2025).

The EUDR will demand companies importing seven key agricultural commodities (coffee included) to Europe to prove that production did not cause deforestation, and that it was done according to national laws. The Regulation will require setting up a tracing system not only for certified coffee, but for all imports directed towards the EU – a significant task, even for one of the most traced supply chains in agriculture. The expected impact is still unclear, and opinions as well as scenarios do vary (see section 2 Overview); most certification schemes have officially supported the Regulation, but with a few caveats and with some organisations indirectly lobbying against its implementation. The main issue concerns potential overlaps, as the EUDR will require companies to perform duties that for many represent the core business of certification schemes. This could have two opposite outcomes: it could make schemes redundant, since companies could decide to perform the tracing in-house, which is usually much cheaper and easier than through independent certification schemes (see section 5.1 Competition between

certification schemes and other tools for EUDR compliance). The Regulation could thus increase the competition between private and third-party certification schemes, which is already a major issue for the latter.

On the other hand, the EUDR could be a benefit for independent certifying organisations (see section 5.2 Integration of certification schemes into EUDR compliance). Since they have the best networks and the most consolidated expertise for EUDR compliance, companies may prefer to perform this via independent certification schemes as it may be too complicated to do internally, or to avoid risking sanctions if their own systems prove inaccurate. Whether the first or the second option will be more relevant will however depend on a few, still unclear factors, such as the strictness in the application of the Regulation.

Future of certifications

The success or failure of certifications in the next future will largely depend on their capacity to change and adapt to the new conditions affecting the coffee sector, and on their functioning. It will thus be crucial to reduce their inefficiency, but also and perhaps mostly to refocus their work on areas and initiatives that will likely prove the most successful already in the near future.

Independent certification organisations may first boost their role in supporting other players on EUDR compliance (see section 6.1 Supporting the application of the EUDR and other legislation) since, as discussed in the previous paragraph, they may be the best suited in delivering systems to adhere to the Regulation. This is already the case for some organisations, even including some that originally only provided services for due diligence systems, and which are now offering EUDR-focused certifications. While this is an interesting option already for the short term, it is not clear how relevant it will be considering the uncertainty over the Regulation, and it could hardly represent a major source of income for larger organisations.

Changing the approach to consumers could be more relevant (see section 6.2 A new approach to consumer preferences). Consumers have decreased their interest in certified coffee for several reasons, but specialty coffee is increasingly appealing, and so are certifications with a focus on quality, such as Organic. Consumers are also increasingly interested in aspects of sustainability that relate less to biodiversity or deforestation, and more on the use of agrochemicals (because of their impact on health and taste). A slight refocus towards the quality implications of sustainable coffee could be thus rewarding for labels. It will however be necessary to improve the overall quality of certified coffee, as it has sometimes faced issues in procuring higher grade beans. As many sustainable practices also result in better coffee, this is however within reach for most labels.

Expanding support for farmers (but above all for smallholders) could be however the easiest and perhaps most effective solution (see section 6.3 Expanding the role of certifications in supporting farmers). This is likely what certifications do best, and it will be especially needed in the near future, as the impact on farmers of climate change, unstable and unpredictable international trade, the EUDR application and other factors, will be increasingly evident. As smallholders' yields are frequently much lower than their potential, organisations can easily boost production without significantly increasing environmental impact. They can also guarantee that farmers receive an adequate income while shielding producers from price fluctuations, which are still a serious threat: the February peak was followed by another, almost similar surge in mid-2025, and this heavy variation may continue. In addition to generally supporting farmers in EUDR compliance, certifications can specifically help with the ownership of tracing data which, in most cases, will be owned by companies or intermediaries (thus further locking-in producers with individual buyers, reducing their negotiating power). Certifications can instead deliver tracing mechanisms where the data ultimately belongs to farmers, as is already happening for instance in Mexico. More generally, focusing on helping smallholders navigate these complicated times for coffee may help both the farmers and the market, as supporting producers will quantitively help global production (which still heavily relies on farmers), while also maintaining the current, significant variety in the offer of coffee products.

Methodology and reading guide

The opinions expressed in this publication are those of the authors. The content of this publication is based on information available at the time of the research, the authors' analysis, and information provided by national and international partners involved in research during the project.

This report describes the challenges faced by certification schemes for coffee, and their recent evolution, considering key factors and players in the sector. This research considers all certifications, while focusing particularly on independent certification schemes. Unless specified otherwise, this research refers to these when using the expressions "certifications", "certification schemes" or "schemes". The focus of this report is global; however, it also includes a specific focus on the EUDR because of the relevance of the Regulation beyond the EU.

This document is divided into the following sections:

- **Overview**, discussing the main features and kinds of certifications;
- **Status of the market**, highlighting the recent evolution of the coffee sector, with a focus on main producing regions;
- **Status of certifications**, which debates the major factors affecting the success of all schemes;
- **Impact of the EUDR on certifications**, an in-depth look at the current and future role of the Regulation; and
- **Future of certifications**, discussing which could be the elements of success for the evolution of certifications.

This report has been realised through desk research, interviews and work on the ground in Mexico, Costa Rica and India. It also includes references to interviews conducted in Indonesia and Brazil by IAI as part of the same line of research, and first published in the report "Agriculture and Deforestation. How to Reduce the Impact of the EU's Agricultural Imports on Global Forests" (Colantoni and Sangiorgio 2024). A full list of interviews is available in the References section.

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About IAI

The Istituto Affari Internazionali (IAI) is a private, independent, non-profit think tank, founded in 1965 on the initiative of Altiero Spinelli. IAI seeks to promote awareness of international politics and to contribute to the advancement of European integration and multilateral cooperation, focusing on topics such as European integration, security and defence, energy and climate policies, as well as key regions such as the Mediterranean, the Middle East, Asia, Eurasia, Africa and the Americas. Every publication and research project can be found here: www.iai.it

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An introduction to the coffee supply chain

Understanding the sometimes-convoluted coffee supply chain is a crucial step to comprehend the evolving coffee market and its impact on certifications. This section provides a brief overview on the different steps and players, and is aimed at readers with limited awareness of the sector.

The structure of the coffee supply chain varies depending on the regions, countries and even areas within the same country, and is significantly influenced by factors such as the size of producers (the bigger the producer, the smaller the number of intermediaries), the structure of the local market, the landscape and the kind of production (particularly whether low or high altitude). However, it is possible to identify a common structure: in most cases, **producers** sell their coffee to **intermediate buyers**, which could also be a cooperative they are part of, which in turn sell their bags to **exporters**. Exporters are based in producing countries but then sell to international buyers (which act as another intermediary) or directly to **roasters and coffee companies**. They finally sell their product to consumers through retailers (supermarkets or dedicated shops) or **coffee shops**.

Specifically, about each player:

- **Producers** are the farmers responsible for all phases of production, from planting to growing and harvesting. The average farm size is quite variable; most production comes from smallholders owning less than five hectares of land (Hayes 2024), and indeed the average coffee farm size in Mexico is three (De Los Ríos et al. 2025) and in Colombia 4.5 hectares (Ortega 2025). However, while in countries like Vietnam or Indonesia it is frequent to find smaller farms (less than one hectare) (Nguyen 2025), Brazilian coffee plantations are generally larger and can be particularly vast (even up to 600 or 700 hectares). Yields also vary, depending on the use of agrochemical inputs and on the expertise of farmers, with more structured farms reaching 3,000 kg per hectare and others (particularly those run by African smallholders) having a production as low as 500 to 1,000 kg per hectare (Poncet et al. 2024). Farmers can be responsible for some part of coffee processing, such as removing the coffee cherry, drying, cleaning and sorting; or they can rely on local processors, larger farmers or cooperatives.
- **Buyers** are a variety of different players, to which most farmers (particularly smallholders) sell their production. They can be local entrepreneurs (as in the case of the Mexican *"acopiadores"*), cooperatives or other entities. In some cases, smallholders sell their coffee to larger producers, which in turn sell it along with their own production. In several cases, buyers also take on the duty to trace production, to provide capacity-building to improve cultivation techniques, or to act as a bridge between producers and organisations offering training and other forms of support. They can be of quite different sizes, usually in relation to the dimension of farms (smaller coffee fields will likely mean smaller and more numerous buyers).

- **Exporters** are usually medium- to large-sized companies acquiring coffee from buyers, and then exporting it worldwide. They can cover national production as a whole (as in the case of Exportadora de Café California in Mexico) or focus only on a region (as in the case of Exportadora de Café Guaxupé in the Brazilian state of Minas Gerais). In several cases, these companies also promote their own sustainable and ethical standards of production among their suppliers, usually with the support of local buyers, or help implement the standards of coffee companies.
- **Roasters and coffee companies** receive green beans from exporters, process them into the final product (roasted beans or ground coffee), manage the packaging and the sale to retailers or coffee shops.

It is worth noting that the supply chain may feature additional intermediaries and players depending on the country or region considered.

Certification schemes play a different role across the supply chain. Major labels, such as Fairtrade, directly interact with producers and with buyers (particularly with cooperatives, as they tend to have higher ethical, sustainability and remuneration standards) to ensure that production follows their standards and that it is properly traced. They buy coffee from producers or buyers, and then sell it to exporters or roasters, which then market it to consumers with the certification label on it. In some cases, certification labels also sell their own product directly to the final consumer, but this is a rare occurrence.

1. OVERVIEW

1.1 MAIN FEATURES OF CERTIFICATIONS

In the last decades, certifications have become a cornerstone of the coffee sector, contributing to limiting the environmental and socio-economic impact of global production and trade. In the absence of binding international regulations, voluntary schemes have served as the primary mechanism for producers and retailers to ensure adherence to specific voluntary sustainability standards. Among the focus areas covered by these standards are environmental protection along with human and labour rights, and these are usually codified autonomously by the certification body.

Coffee has been among the first agricultural commodities to be covered by voluntary schemes and it remains one of the most widely certified products globally. Producers, retailers and consumers in the coffee sector have interacted with certifications from different standpoints. Farmers have traditionally relied upon them to guarantee adequate revenue increases when adopting sustainable but expensive farming practices to respond to environmental, social or economic concerns (Borrello et al. 2022, Bray and Neilson 2017). This trend has been traditionally important for smallholders, who are estimated to be responsible for between 67 and 80 per cent of total coffee production (Charles 2023a, Kishaija et al. 2025). Smallholders' production model still largely relies on less environmentally harmful practices, but with higher costs than those faced by producers benefiting from economies of scale. Smallholders often look at certification as an investment capable of compensating them with increased premiums for their sustainable practices.

Different point of view along the supply chains

Roasters and retailers have also had an interest in linking sustainability labels to their marketing strategies due to the fact that coffee is a high-visibility product often sold in branded packages – and to the consumers' perception that certifications are a tool to contribute to global sustainability (Bartoloni et al. 2021). However, as consumers become more interested in quality than in sustainability, certifications' capacity to attract customers is reduced. Indeed, on occasion, certified coffee has been considered of lower quality in comparison to similarly priced alternatives, especially under those schemes offering minimum prices and premiums, which reduced the incentives for producers to offer high-quality beans when prices are low, as they would gain this compensation anyway (see section 6.2 A new approach to consumer preferences).

In both cases, whether consumers' perception is influenced by attention to issues or by search for quality, demand for certified coffee has historically been higher than for other agricultural commodities sold in bulk to other traders (CBI 2025). This has been true in high-income regions, especially in Europe and North America, but it is a growing tendency in other markets, especially in Asia and Oceania (Voora et al. 2019).

Among the main features differentiating certifications, there are:

- Different compliance and monitoring models, especially related to how audits are conducted;
- The sorts of actors that develop them, whether civil society organisations, private companies or public authorities;
- The benefits and costs entailed in adoption; and
- The different focus areas they cover, such as environmental protection, human and labour rights, and quality.

1.2 DIFFERENT COMPLIANCE AND MONITORING MODELS

First, second and third party audits

Each certification body produces and updates its own detailed standards, verifying documentation and records of producers and exporters intending to apply for the certification and performing regular on-site audits (Fairtrade 2021, Rainforest Alliance 2023b). Indeed, verification through audits is one of the main characteristics of certifications, and different schemes may have different audit models, depending on the entity conducting them.

Audits may be performed by first, second or third parties. In first-party audits, the certified entity itself carries out self-verification, whereas in second-party audits, compliance is conducted by the buyer. Both methods present accountability limitations and indeed third-party audits, the model in which an independent certification body verifies and guarantees standards compliance, are considered the norm among major voluntary schemes. In this model, third parties ensure unbiased judgment and compliance is then verified through periodic monitoring. Controls may apply to other stakeholders operating along the supply chain, such as processors, roasters, transporters and final retailers (Zezza et al. 2020).

Participatory Guarantee Systems

Other compliance models are those based on Participatory Guarantee Systems (PGSs), in which certifications are verified by the same stakeholders involved in the production and trade of the certified goods. Unlike first-audit models, PGSs are based on collective and reciprocal compliance, in which larger groups of stakeholders, usually part of the same local community, collaborate in setting standards, developing monitoring processes, and making decisions for their implementation, ensuring that each other comply with them (FAO 2018). PGSs are based on mutual trust and peer-to-peer relations to certify producers. By their nature, PGSs in the coffee sector are unlikely to reach broader adoption outside small communities. However, they have shown potential to foster environmental and economic protection for smallholders when integrated in a larger administrative system, as shown by positive benefits experienced by farmers in Colombia (Solarte Montoya and Grass Ramírez 2021). Similarly, PGSs may be more readily

adopted when coordinated through international cooperative alliances, such as the Slow Food Coffee Coalition, which has acted as a proponent of best practices (SlowFood 2022). Significantly, in both third-party and participatory systems, the success of a certification depends heavily on the credibility and authority attributed by the consumers to the certifier body (Duan et al. 2024).

1.3 KINDS OF CERTIFICATION: CIVIL SOCIETY, PUBLIC, PRIVATE SECTOR

A heterogeneous ecosystem of private, civil society and public actors has historically populated the certification landscape in the coffee sector. Although voluntary standards have mainly involved civil society organisations, which usually enjoy higher unbiased credentials, private companies have increasingly developed their in-house schemes, which are usually cheaper and more flexible to adopt. Some public authorities also offer voluntary labels, which, even when remaining voluntary, are linked with higher capability of control and enforcement in their respective markets.

Civil-society-led schemes

Major civil society labels

The main civil-society-led certifications in the coffee sector are the Common Code for the Coffee Community (commonly referred to as 4C), Fairtrade and Rainforest Alliance (which in 2018 merged with UTZ and is therefore sometimes still referred to as Rainforest Alliance/UTZ). The last two also cover other agricultural commodities, while 4C exclusively certifies the coffee sector. 4C also represents the largest share of certified farming area (around 1.3 million ha), followed by Fairtrade (around 950,000 ha) and Rainforest/UTZ (around 800,000 ha) (Estrella et al. 2022).

4C was established as a multi-stakeholder scheme. It included coffee producers, traders, roasters, NGOs, the social sector and even representatives from the scientific community. It aimed to cover all major sustainability areas, ensuring the use of sustainable practices in the production and processing of coffee (4C Services 2024a).

Fairtrade mainly focuses on improving social and economic conditions for smallholders. It covers issues spanning work conditions, fair compensation and democratic governance. It guarantees that production has not been carried out through exploitation and one of its main goals is to expand labour rights and income. Despite this focus on social issues, Fairtrade also increasingly encompasses an environmental dimension, pointing out that ecological and habitat destruction also threatens the livelihood of workers and communities dependent on these ecologies (Valkila 2009)[1].

1. See also FairTrade International website: *Fairtrade works for a better climate and environment* and Fairtrade Foundation website

Rainforest Alliance is the main certification for biodiversity conservation and protection. Therefore, it is also the main scheme in the fight against deforestation, soil degradation and climate change. However, similarly to Fairtrade, it has expanded its original scope to also partially address social and human rights concerns (Negre 2023).

Another major certification is Organic. It follows a holistic approach based on the four principles of health, ecology, fairness and care. It proposes to expand good agricultural practices, especially focusing on reducing the use of agrochemicals and genetically modified organisms, and advancing instead the use of less environmentally impactful alternatives. Other less adopted certifications cover more niche issues. For example, Smithsonian Bird Friendly guarantees that coffee production has not impacted tree cover and height, ensuring the protection of habitat for birds and other wildlife[2].

The coordination effforts by ISEAL

Civil-society-led certifications often enjoy higher ethical authority than company-led ones, as they are managed independently from commercial interests (León-Bravo et al. 2022, Aubron 2019, Jones et al. 2024). However, they are not exempt from scandals or scepticism around actual effectiveness (Fouilleux and Loconto 2017). Some of these certifications coordinate their efforts through larger umbrella organisations, such as the International Social and Environmental Accreditation and Labelling Alliance (ISEAL) (Overdeveste 2022). ISEAL has developed codes of good practice for standard-setting organisations and brings together Fairtrade, Rainforest Alliance, 4C and other minor schemes (see section 2.6 Brief history of certifications).

Company-led schemes

A growing alternative in the coffee sector has been company-led schemes. These are often adopted by a company to comply with internally set sustainability goals and to respond to external pressure from consumers or investors. Private schemes vary significantly among different companies and may apply only to the issuer or to its suppliers as well.

The largest company-led schemes

These private certifications are often cheaper and more flexible alternatives for actors already part of the same supply chain as the certifying sponsor company (Lambin and Thorlakson 2018). The main differences between these and civil-society schemes are in the audit system, as companies conduct audits internally or hire external auditors to assess compliance with the criteria they have established.

Starbucks' C.A.F.E. Practices and Nespresso's AAA Sustainable Quality programme are the largest cases of company-led schemes. They aim to improve all sustainability areas touched by the coffee sector, such as social, economic and environmental sustainability, but they also directly cite improving product quality among their objectives (Lambin and Thorlakson 2018).

2. See Smithsonian's National Zoo & Conservation Biology Institute website: *About bird friendly coffee*

Larger private initiatives

Private companies have also sponsored the creation of larger umbrella initiatives. These standards are developed by groups of companies involved in the same or interconnected sectors. In the coffee sector, an example is the Global Coffee Platform, which represents efforts to define and enforce industry-wide standards.[3] Theoretically, the Platform could have a significant market reach given its multi-company nature. Indeed, it could also have a greater enforcing capacity through peer-coordination, where companies check each other on their adherence to the common standards (Lambin and Thorlakson 2018). However, the prevalence of the previously mentioned single-company-led schemes makes it difficult for larger platforms to rise to prominence.

Public-led schemes

USDA Organic and other certifications

There are also examples of public-led certifications. While these are often based on national legislation and regulatory frameworks, they may also be based on voluntary mechanisms. An example is the USDA Organic certification in the United States, which is backed by federal law and administered by the US Department of Agriculture (Wiggins and Nandwani 2020).[4] Regarding coffee, USDA Organic certifies that farming and processing have followed quality standards and that no harmful fertilisers, pesticides and genetically modified organisms have been utilised. Audits are conducted by USDA-accredited certifying agents. While public schemes are more easily enforceable, they are often shaped by political considerations and may evolve slowly. Additionally, given their exclusive regulatory powers, public authorities are more dedicated to creating binding standards rather than voluntary ones. International organisations have also indirectly shaped the voluntary certification landscape. For instance, the Food and Agriculture Organization (FAO) has developed the Good Agricultural Practices (GAP) framework, which has been used as a reference for designing standards, both public and private (FAO 2024, Del Castillo 2024). These guidelines remain generic in nature, allowing bodies to set more specific standards adapted to specific contexts or commodities. For the coffee sector, FAO has organised workshops for farmers to help them adopt agroforestry practices required for certification compliance. These largely enhance farmers' capacities in managing agroforestry techniques and potentially developing their own PGS (Del Castillo 2024).

1.4 BENEFITS AND COSTS

Certifications also entail different benefits and costs. While they usually include initial and periodic review fees, audit fees change significantly (Oya 2017). In addition to administration fees, adapting practices to the certified criteria may also represent a monetary burden. The cost of converting production largely depends on the practices already employed. Upscaling from a starting point with an already high level of sustainability may require little to no cost, while completely

3. Global Coffee Platform website: *Coffee sustainability is a shared responsibility*
4. See also USDA website: *Organic certification and accreditation* and European Commission DG for Agriculture website: *Organics at a glance*

converting production may be an obstacle in terms of financial resources, time and expertise required. For example, implementing tracking and record-keeping may require digital systems and in contexts where these tools are not widely diffused, this could represent both a technical and a financial barrier to adopting certifications (Oya 2017). Fees and costs of production conversion may discourage participation, especially when consumer demand for certified goods is weak. This is especially true for producers exporting toward markets such as India and East Asia, which have shown a scarce demand for certified coffee (Oya 2017).

The costs of certifications

Therefore, the economic viability of adopting a certification hinges on the ratio between these costs and the potential benefits that certification promises (see section 4.4.3 Keeping certifications accessible to farmers). Among these benefits, first and foremost, is the potential price premium that consumers are willing to pay. Indeed, certifications should signal the added value linked to specific practices and convert it into additional monetary revenues. This value would otherwise go unrecognised in purely free-market pricing mechanisms, and producers motivated only by profit maximisation would have no reason to adopt sustainable practices (Ravaglia et al. 2018). For instance, in Nicaragua, coffee producers certified by Fairtrade and Rainforest Alliance have been shown to obtain higher revenues and better external market access than non-certified producers (Bacon et al. 2008). Generally, the added value of a certified product is conferred by marketing and reputational gains. Certified companies can market themselves as sustainable, potentially attracting market segments responsive to specific issues (Bray and Neilson 2017). However, the value that buyers assign to sustainability is highly volatile and largely income-dependent. While it is higher in developed countries, the largest share of consumers are more responsive to price signals than to evidence of sustainability practices (Olsen et al. 2021). To alleviate this problem, Fairtrade guarantees producers a minimum price, protecting them from fluctuating consumer preferences and unstable market prices. As a result, producers are assured of receiving at least a minimum price to cover the costs of sustainable production, even if the market price falls below it (Smith 2011). For certain commodities, including coffee, Fairtrade also offers a price premium, an additional payment to producers to be used for investment in their business, livelihood and community or for the socio-economic development of the workers and their community. Therefore, Fairtrade coffee buyers pay either the Fairtrade Minimum Price or the market price (whichever is higher), and a premium for conventional coffee. However, the financial sustainability of this mechanism is not guaranteed if prices plummet for long periods, and it is more likely to be an emergency and short-term response rather than an alternative price mechanism (Mol and Oosterveer 2015). Other certifications do not always guarantee that a producer addressing a specific issue will receive a proportional premium. In many cases, farmers struggle to obtain higher revenue even after adopting certification. For example, the Colombian coffee market showed that certification compliance required significant labour in-

Price premium and material benefits

vestment, often forcing farmers to give up non-farm activities and crops other than coffee. In such cases, the producers' income did not always improve, with certification costs overcoming their benefits (Dietz et al. 2020). Additionally, revenue increases are not always distributed evenly among intermediaries, retailers and producers and are not necessarily absorbed by those who have incorporated additional costs in their operations (Mol and Oosterveer 2015).

Non-monetary advantages

Certifications may also offer non-monetary advantages. For instance, they may help to gain improved market access in new geographical areas (Duan et al. 2024) or they may foster knowledge transfers that may lead to increased production efficiency or better risk management (General Interviews 1). Certifications also promote long-term positive transformations, which are difficult to both quantify and monetise. Indeed, one of certification's main merits is to act as a catalyst for social transformation and to create connections between consumers and producers. Certifications have been instrumental in raising awareness of social and environmental justice issues that the public might otherwise remain unaware of (Bray and Neilson 2017, Pinedo Caro 2020). For instance, certifications have contributed to increasing public perception of coffee farmworkers' conditions, highlighting where their standards of living are lacking and that they do not receive fair earnings (Slob 2006, Jena and Grote 2017).

1.5 FOCAL AREAS OF CERTIFICATIONS: ENVIRONMENT, HUMAN AND LABOUR RIGHTS, AND QUALITY

Certifications have been developed to respond to human rights violations, environmental degradation and market inequalities (Lambin and Thorlakson 2018). The main schemes have either been established to certify a large set of agricultural commodities, including coffee, and certify their environmental (e.g., Rainforest) or social (e.g., Fairtrade) dimensions, or have been originally established exclusively for coffee, but encompassing multiple issues (e.g., 4C and Utz). However, since their emergence, the notion that certifications are issue-specific has lost traction and a tendency to converge over similar issues is growing. Indeed, certification market penetration is tied to consumer awareness and interest in addressing a specific issue. Expanding the dimensions covered by one certification, therefore, may serve as a way to increase its prevalence. Instances of this can be observed in both the Fairtrade and Rainforest Alliance schemes. Fairtrade, which focuses on social justice and fair compensation, has over time incorporated environmental considerations, including requiring risk assessments, and it has progressively aligned its criteria with sustainability and climate-change adaptation standards.[5] Similarly, Rainforest Alliance, previously exclusively interested in certifying environmental conservation, now assures that farms are addressing issues

5. See Fairtrade Foundation website

such as child labour, forced labour, poor working conditions, gender inequality and the violation of indigenous land rights.[6] Both schemes' scopes have therefore progressively converged towards covering increasingly overlapping issues, hoping to extend their potential customer base (Colantoni and Sangiorgio 2024).

In addition to the convergence tendency, it should also be highlighted that there are significant interconnections between many of these dimensions and the set of specific issues they encompass (for instance, efforts to avoid deforestation may also lead to adopting agroforestry techniques correlated with better final quality). Indeed, the following division between environmental, socio-economic or quality dimensions represents more of a guiding tool between main issues addressed by certifications, rather than a form of distinct categorisation. It should also be noted that any definition of sustainability reflects multiple ways in which stakeholders – farmers, companies, policymakers – prioritise different issues. Consequently, multiple versions of the sustainability concept may significantly overlap or diverge, attempting to frame their conception as the most legitimate. Certifications, avoiding vague pledges of sustainability, may be a better tool to communicate which specific issues the production process has addressed.

Environmental standards

Environmental sustainability is one of the main areas covered by certification systems. These schemes aim to protect the natural capital affected by production and trade processes. For example, they verify practices to counteract soil degradation, increase proper use of agrochemicals, implement natural pest management and integrate efficient water use. They also certify habitat preservation, such as maintaining buffer zones, shade tree diversity and density, and prohibit deforestation or land conversion. In the past years, as the climate emergency has grown, certifications have included climate-related practices as well, including carbon reduction strategies and adaptation planning. Some schemes also promote indirect environmentally sustainable production by promoting productivity improvements. For example, increasing land efficiency leads to less farmland being required, and diminishes the pressure to expand into forests (D'Albertas et al. 2023, Jena et al. 2022).

Economic and social standards

Certifications focused on the social and economic dimensions guarantee the respect and valorisation of human and social capital, especially smallholder farmers and vulnerable categories. They usually primarily certify that exploited labour or minor workers have not been employed and that human rights have been observed. Some schemes also prescribe conditions to empower marginalised groups, such as women, through mandates on inclusion, representation and benefit-sharing (D'Albertas et al. 2023, Jena et al. 2022). Conditions of fair wages are also included in these certifications. Indeed, in the coffee sector specifically, as traded volumes continue to increase globally, issues of sharing monetary gains have raised interest among consumers and various actors of the supply chains. Around 5.5 million smallholders in the coffee sector – and a large share of their

6. See Rainforest Alliance website: *Strengthening worker rights and well-being in agriculture*

related workforce – are living close to or below poverty conditions (Ruben 2023, Browning and Moayyad 2017). Some schemes sponsor the establishment of collective funds, ensuring that part of the revenue is reinvested in the well-being of the community that was involved in production. Indeed, certifications in this dimension also tackle larger financial sustainability, potentially promoting social and economic reforms aimed at long-term economic growth and at the well-being and quality of life of workers and communities involved in the supply chain (Giovannucci and Ponte 2005).

Coffee quality standards

Certain certifications in the coffee sector also focus on product quality (Hernandez-Aguilera et al. 2018, Ibanez and Blackman 2016). Coffee quality is certified considering how production practices and geographical indications impact physical characteristics, particularly concerning aroma, taste, appearance and colour. The Coffee Quality Institute (CQI), for instance, is a third-party organisation that certifies coffee based solely on quality. CQI collects and ensures data on coffee quality that can be shared with farmers, roasters and consumers. The label offers consumers a way to differentiate their buying decisions (CQI 2024). Certain categorisations of specialty coffee also hinge on quality certifications, as there are no binding criteria to define a coffee as such (ICO 2024b). The International Coffee Organization (ICO), for example, defined specialty coffee as one with the highest quality, typically originating from a single-origin, and being certified as such by coffee tasters, such as CQI or the Specialty Coffee Association.[7]

1.6 A BRIEF HISTORY OF CERTIFICATIONS

Birth of certifications

Certifications in the coffee sector have emerged since the late 1980s. The Fairtrade label was launched in 1988 to cover various agricultural commodities, and by the same year, it had already started cooperation with Mexican smallholders to launch their first coffee certification initiatives. It was followed by Rainforest, which had been originally established in 1987, but started certifying coffee production for the first time in 1995, in Guatemala (DRWakefield 2016). Voluntary schemes' growth in the 1990s responded to concerns over the environmental and social consequences of growing international trade. They grew in prominence as consumers' awareness of the effects of globalised supply chains – especially in the Global South – became more diffuse (Guedes Pinto et al. 2014). While these concerns were growing, particularly in Western Europe and the US, environmental regulations, traditionally enforced by national authorities, were increasingly perceived as inadequate for monitoring the impacts of commodities produced and traded in global markets.

Between 1990 and 2000, the international community developed various trade and environmental multilateral agreements, such as the establishment of the United

7. See *ICO website: Speciality coffee*

Nations Framework Convention on Climate Change in 1992, and the agreement establishing the World Trade Organization (WTO) in 1994 (UN 1992, WTO 1994). Similar agreements immediately presented several limitations, such as long negotiations, non-binding commitments, opt-out clauses and weak enforcement mechanisms (Guzman 2004). The limits of both national and international regulations were particularly evident in the coffee sector, as globally traded volumes continued to increase during the 1990s. Certifications tried to fill this gap, gaining consumer trust in the Global North.

The attempt to integrate certifications with international trade rules

As the WTO attempted to strengthen international trade rules, a debate emerged on the role of voluntary standards within the framework of international trade law. Attempts were made to integrate certifier bodies into the new trade rules. For instance, the International Organization for Standardization began coordinating the development of voluntary environmental standards to guarantee their compliance with WTO rules (Guzman 2004). However, attempts to build a more structured governance for certifications largely failed.

Instead, since the early 2000s, certifications have multiplied, each pursuing market share and legitimacy. By 2004, all major civil-society-led and company-led schemes currently dominating the coffee sector had been established (Overdevest 2022). Utz – originally Utz Kapeh – was founded in 2002. It was followed by the Starbucks-sponsored C.A.F.E. Practices in 2004. In parallel, first attempts to combine private companies and civil-society certifiers were made, with the establishment in 2003 of AAA, promoted as a partnership between Nestlé and Rainforest. The Multistakeholder Common Code for the Coffee Community (4C) certification system was launched in 2004 and rapidly rose to prominence as the sector's largest certification.

In 2002, in this proliferation context, ISEAL was established to self-regulate the certification landscape. ISEAL aimed to strengthen the credibility, effectiveness and impact of sustainability standards and to serve as a platform for dialogue between certification schemes and international institutions. However, its influence has remained limited (Overdevest 2022). It primarily became a 'standard and good practices setter' publishing in 2004 a code to "improve consistency between standards, enhancing their effectiveness" (Loconto and Fouilleux 2014: 172). However, any attempt to build a more structured governance in the certification landscape continued to fall short. For instance, the ISEAL-sponsored mechanism for mutual recognition between different standards largely failed to gain traction (Overdevest 2022). Increasingly, producers and traders lamented duplication costs and added complexity (Fiorini et al. 2017). These issues became fully apparent after the 2009 financial crisis, as certification costs became even more difficult to bear for both suppliers and consumers.

2. STATUS OF THE COFFEE MARKET AND ITS INFLUENCE OVER CERTIFICATIONS

Certifications are significantly influenced by a number of factors in the coffee market, particularly:

- Coffee prices and global balance between supply and demand;
- Climate change impact;
- Regional trends.

Generally, all market dynamics affecting prices will shape the certification landscape. Indeed, when prices are high, certification's benefits become less appealing. Differently from other agricultural commodities, coffee prices show a marked fluctuating tendency, which may also decrease producers' interest in sustained investments necessary for certification, as it increases uncertainty over long time horizons.

Similarly, climate change generates additional unpredictability through severe weather incidents. Climate-induced events not only influence supply but also significantly shape what the focus areas of certifications should cover. Indeed, for instance, both Rainforest and Fairtrade have re-evaluated what environmental and workers' protection means in a rapidly changing climate context. Both certifications now include criteria for evaluating and fostering adaptation strategies and how climate issues impact farmers' lives and crops.[8]

To understand the global coffee market and its effects on certification adoption, the regional trends of different coffee-producing regions should be examined. Differences in employed practices determine which production models are predominant across different regional contexts. Some production models, such as agroforestry systems, are potentially more suited to be certification compliant (especially for environmental protections), while others, such as full-sun monocultures, may be based on techniques less compatible with certain certifications' criteria.

2.1 COFFEE PRICES AND GLOBAL BALANCE BETWEEN SUPPLY AND DEMAND

Coffee prices are among the main factors influencing the adoption of voluntary standards. Generally, for all commodities, when prices are already high, buyers are less likely to pay even more for certifications (Rubio-Jovel 2024). The coffee market has historically been characterised by fluctuating prices and has presented cycles of boom and bust. The following factors should be looked at to understand the cyclical nature of coffee prices and their relation to adopting certification:

- Physical characteristics of coffee cultivation;
- Discrepancies between supply and demand;
- The way coffee is typically priced through financial markets.

8. See Fairtrade Foundation website

The alternating productivity of coffee farming

First, coffee plants are characterised by an alternating productivity pattern in which years with abundant yields are periodically followed by years with low ones (Garcia and Orians 2022). The lack of a steady and predictable supply significantly affects price volatility. This is also heightened by the lengthy period that new coffee cultivations take to reach maturity and produce economically viable outputs, between three and five years. In agroforestry systems, even more years could be necessary, as other kinds of trees have to reach maturity to allow coffee bushes planted below to be cultivated in their shade. The wait for coffee and shade trees to grow limits the possibility of switching to other cultivations in cases of low prices, as is often done with more rapidly growing agricultural commodities. Similarly, it also makes it difficult to immediately expand production in times of high prices (Valencia et al. 2015, Poncet et al. 2024). In the case of certified coffee, this is even more significant, as converting production to its standards often requires additional investments and time. Once invested, this capital is difficult to repurpose. As a result, many producers are even less likely to convert production to other crops due to the irreversibility of investments made for their coffee production practices.

The geographical distribution of supply and demand

Second, the specific balance between supply and demand in the coffee sector and its geographical distribution should be considered. Coffee is among the most globally traded commodities. In 2023, it generated an estimated 20.4 billion euros in production value and around 23 billion euros of traded value globally (Amrouk et al. 2025). However, coffee only grows only in the "Coffee Belt", the area between the Tropic of Cancer and the Tropic of Capricorn. Therefore, while demand is global, production is concentrated in a limited number of countries, with around 74 per cent of the total supply coming from Brazil, Vietnam, Colombia, Indonesia and Ethiopia. Brazil alone accounts for 30–40 per cent of world production, while Vietnam accounts for another 20 per cent (Poncet et al. 2024, Panhuysen and de Vries 2023). On the demand side, while traditionally Western Europe and North America have dominated consumption and imports, alternative trends are developing. Demand in Asia is rising, with Japan and Indonesia being the third and fourth countries for consumption (ReportLinker 2024).

Financial markets' effect on pricing

Third, the way coffee is typically priced and traded in global financial markets should also be considered. The two main varieties of coffee, arabica and robusta, are primarily traded on the New York and London stock exchanges (Panhuysen and de Vries 2023). Coffee is mainly traded through futures contracts – an agreement to buy or sell a specific asset at a predetermined price for a later date. For large-scale coffee roasters, futures provide a way to gauge prices ahead of time, partially addressing unexpected spikes linked with supply disruptions. However, futures markets also create the environment for speculators to profit from price fluctuations.

All these factors heighten volatility, influencing what purely market-based supply and demand alone would determine. This is not a new trend in the coffee sector.

Indeed, since the phase-out of the International Coffee Agreement on production quotas in 1989 – which played a role in stabilising prices – the sector has shown major volatility, with an all-time high in 1994 and another major spike in 1996. Between 2000 and 2010, prices remained relatively stable and then increased again in 2011. This was possible thanks to a combination of lower supply coupled with strong consumption growth, particularly in emerging markets. In parallel, this period also saw the establishment of specialty coffee in high-income economies, causing prices to surge (Kollewe 2011). However, subsequent production surpluses drove prices to multi-year lows by 2020, punctuated only by short-lived spikes in 2014 and 2016 (Ghoshray and Mohan 2021). Between 2021 and 2022, prices sharply increased again, mainly due to weather conditions in Brazil and Colombia that affected arabica supplies. After another brief period of moderate prices, from late 2023 through 2024, they resumed growth and the first months of 2025 have seen this trend continue, with a peak in February 2025 (see section 4.3 Price fluctuations).

2.2 CLIMATE CHANGE IMPACT

Upward pricing pressure due to extreme weather events in major producers, such as Vietnam, Indonesia and Brazil, is exemplary of the interaction between the coffee sector and climate change. There was a time when these extreme weather events were once-in-a-lifetime occurrences. The most notable case is probably the "Black Frost" of July 1977, when snow fell for the first time in recorded history in Brazil's Paraná region and destroyed over 1.5 billion coffee trees and halved the country's output, triggering a global price surge. However, extreme cold- or heatwaves are projected to become more common in the next decades under all main climate scenarios, affecting supply and therefore exacerbating price volatility.

Shifting climate conditions for coffee farming

Indeed, it has been estimated that in a scenario in which global temperatures will increase by 2 degrees, precipitation, soil moisture and vapour pressure deficit will be significantly influenced (Kath 2022). Such conditions are expected to affect, in particular, arabica coffee, impairing its plant photosynthetic rates, reducing yield productivity and bean quality (Kath 2022). Specific areas may no longer be able to sustain coffee cultivation (IPCC 2023, Grüter et al. 2022). For instance, arabica needs to be cultivated at an elevation between 900 and 2,000 meters, with optimal temperatures between 17 and 25 degrees, an annual water deficit of less than 100 mm and ideally no risk of temperature reaching frost conditions (Fridell 2007, Zullo et al. 2011). By 2050, farmland with such conditions will see a contraction estimated between 50 and 90 per cent. This decline will be particularly concentrated in areas already at the edge of the Coffee Belt and with production concentrated at low altitudes, such as northern Mexico and Ethiopia, which are likely to see a decline in suitable land of nearly 98 per cent (Bilen et al. 2022).

Due to these shifting conditions, many in the sector are looking at expanding robusta coffee production. This variety can tolerate higher temperatures, generally between 22 and 30 degrees (Gustafsson 2024). The potential shift of production, however, is not without risks, as it remains susceptible to cold waves and lower temperatures (Bunn et al. 2015, Gustafsson 2024).

It should be highlighted how climate change is also likely creating new opportunities for both arabica and robusta, as previously unsuitable farmlands see their conditions mutate. For example, areas in the extreme south of Brazil and the north of Argentina, or in eastern and central Africa, could develop a better climate for cultivation (Bunn et al. 2015). However, the idea that global coffee production could easily shift towards different latitudes is misleading. First, new farmland would only be temporarily suitable as the climate is expected to continue changing and not stabilise in a new model. As previously mentioned, coffee is a perennial crop with a relatively long time required to reach maturity. Expanding production just for the time horizon before climate conditions will shift again would be a failing investment (Bilen et al. 2022, Zullo et al. 2011, Grüter et al. 2022). Second, many of the potential future suitable areas are currently highland forests that would face deforestation to accommodate new plantations (Bunn et al. 2015). As forests represent major carbon sinks and their loss is already among the main amplifying factors of climate change, the expansion of cultivation in these areas may further accelerate the cycle that leads them to no longer be suitable for coffee production.

Increased pest and fungi threats

Changing climate conditions are also expected to amplify the proliferation of disruptive fungi (Jaramillo et al. 2013). The coffee leaf rust (*Hemileia vastatrix*) has been among the main threats to the coffee sector, with the first major outbreak being the Sri Lanka epidemics in the 1860s (Kushalappa and Eskes 1989). Recent and destructive cases have been the 2011–2013 outbreaks spanning across Central America. This coffee leaf rust epidemic led to a 20 per cent decline in global production and an estimated 440 million euros of financial losses (Dupre et al. 2022). The fungus damages coffee trees by causing the drop of infected leaves, which can lower yields by 50 per cent and have a cumulative weakening effect on the trees for succeeding years (Gianessi and Williams 2011). As rain contributes to spore dispersal, it benefits from the reduced dry season caused by climate change (Ghini et al. 2015). Crops farmed in more climate-stressful conditions are also less resistant to such diseases, increasing epidemic risk. Climate change may also aggravate pest infestations, such as the coffee white stem borer (*Monochamus leuconotus P.*), the coffee berry borer (*Hypothenemus hampei*) and the coffee leaf miner (the larvae of the *Leucoptera coffeella* moth). Studies have shown that warmer conditions may accelerate these pests' reproductive cycles, even producing multiple generations per season, leading to faster spread and higher infestation rates (Ghini et al. 2011).

Counteracting these changes will require a range of adaptation strategies. New disease- and heat-tolerant varieties should be explored. Shade techniques and irrigation optimisation will also need to be developed. Agroforestry remains the best model to face climate change as intercropping shade trees can moderate temperatures, preserve soil moisture and preserve habitat for pollinators. However, climate-resilient practices usually produce less output and require substantial upfront capital to be adopted.

2.3 REGIONAL TRENDS

Coffee-producing countries are highly heterogeneous. As the Coffee Belt cuts across areas of Latin America, Africa, and Asia with different ecological and socio-economic characteristics, it has created differentiated regions with specific production models. These are characterised by the prevalence of different coffee varieties, varying levels of productivity,[9] and the use of different sustainability techniques and practices (Hameed et al. 2018), which, in turn, shape the adoption of certification schemes.

Asia

Asia accounts for between 29 and 31 per cent of global coffee production, especially with a predominance of robusta exports (ICO 2024a).[10] The region, especially Vietnam and Indonesia, has seen a rapid increase in certification-compliant coffee. Vietnam alone is the largest certified coffee producer in the region, with approximately 30 per cent of coffee cultivation area certified by at least one scheme in 2024 (Nguyen 2025). A general distinction should be made between Southeast Asia and other large players, such as China and India, although in all these areas it can be found both that farmers intercrop robusta with shade trees and that large cooperatives work in monoculture.

Southeast Asia

The dominant production model in Southeast Asia has historically resulted from the overlap of farming communities composed of a large number of smallholders and colonial agricultural systems, which pushed the introduction of high-yielding cultivation, notably the robusta variety (van Noordwijk et al. 2021). This has led to structural similarities across the region, with a relatively high number of farms and harvested areas, dominated by small- to medium-sized holdings. Vietnam alone – the region's main supplier and the world's second-largest coffee exporter – accounts for nearly 20 per cent of global production (Voora et al. 2019, Nguyen et al. 2024). The country is characterised by small but extremely high-yielding farms, at around 2500/kg/ha, especially in key provinces such as Đắk Lắk, Gia Lai and Kon Tum (Dao and Nguyen 2019, Raymond 2008, Poncet et al. 2024). The country's collectivisation in the 1950s and the following liberalisation of the agri-

9. Coffee productivity is quantified here as average yields for farmed area annual (kg/Ha/year)
10. See also FAOSTAT website: *Crops and livestock products*

culture sector in the 1980s have created a system that combines strong state coordination with privately held farms. The role of the state is also reflected in the sustainability schemes adopted by farmers. Indeed, among the major schemes in the country, there are the Vietnamese Good Agricultural Practices (VietGap) issued by the Ministry of Agriculture and Rural Development, and the National Sustainability Curriculum for Arabica coffee, developed in cooperation with the Global Coffee Platform. Both focus on farmer training and aim to give producers the expertise to ensure product traceability and environmental protection (Dao et al. 2019). Recently, Vietnam's prominence in the global coffee value chain has been complicated by uncertain trade dynamics. Increasing fear over tariffs imposed by the United States has increased volatility in its export markets, possibly limiting future access to North American consumers (Chu 2025, Global Coffee Platform 2021, Desrochers et al. 2025).

Role of Vietnam

Among other major regional producers, Indonesia is the second-largest coffee exporter in the region, and has pursued further expansion. Since 2018, the country has added a net 71,000 ha to its total harvested area, reaching 1.2 million ha (ICO 2024a, Rahmanulloh 2025, Voora et al. 2019, Wahyudi et al. 2020). However, it has also faced growing concerns regarding climate vulnerability. Specifically, impacts of La Niña bringing heavy rainfall during and after the flowering period have reduced harvest quality and volumes and could potentially become the new norm (ICO 2024, Hidayat et al. 2018). Additionally, the adoption of certifications has been slow and there is little evidence that it has brought a positive impact to the country's producers (Astuti et al. 2015).

Role of Indonesia

Together with large established suppliers, emerging producers have demonstrated significant growth, pushed to enter the sector by high prices. Laos, for instance, has tripled its coffee production since 2000, overtaking other mid-sized Asian suppliers such as Thailand (Onphanhdala 2022, ICO 2024a, Voora et al. 2019). However, as new farmers enter the sector, it could also increase the use of unsustainable practices, which could ultimately diminish the total volume of sustainable farmed coffee. The small scale of Southeast Asian farms could also contribute to the lack of upfront capital for smallholders to convert production. Additionally, as export destinations of coffee became increasingly inter-Asian, with markets such as China and India importing more volumes, but with limited attention to certifications, their adoption is increasingly seen as unnecessary by Southeast Asian farmers (Moruzzo et al. 2020, Deloitte 2024).

Other Southeast Asian players

Other players in Asia

As China and India become increasingly large import destinations, they are also changing their role as suppliers. This is particularly true for China, which is increasingly expanding its role in the coffee value chain, pushed by increased domestic demand (Swedish Chamber of Commerce China 2023). The expansion of

Role of China

Chinese production has been defined as a "crop boom", and has been particularly manifest in the country's Southwestern regions, which present the ideal conditions for coffee farming (He et al. 2025). While part of this expansion has been pushed by smallholders previously farming other commodities, there has also been a tendency to expand larger-scale monocultures (He et al. 2025). The growing capacity of the Chinese domestic market to absorb this production may lead to a substantial internal balance in the medium term; however, if production outpaces internal demand, a larger scale shift could tip the international coffee markets. The Chinese National Organic Standard is among the main schemes in the country – covering a vast array of agricultural commodities – while the China Organic Food Certification Center, China Quality Certification Center and the China Green Certification Center are the specific bodies responsible for ensuring coffee standards in the country (Xiao 2024). However, they are all entirely managed publicly, limiting operational space for third-party external certifications (Sun 2022).

Role of India

India is another large supplier, with production concentrated in the country's south, such as in the state of Karnataka, the principal coffee-growing region (Shivani and Iyer 2025). The Indian coffee sector is characterised by an elevated degree of central planning, with the Indian Coffee Board playing a significant role in coordinating responses to domestic or international shocks that may affect the coffee sector. However, there is still little coordination in terms of standards in the certification sector. According to the Indian Coffee Board, 85 per cent of production in the country is not certified due to the high cost of accreditation. To counteract this trend, the Indian Coffee Board has proposed to create its own public-led standard. However, the aim remains to increase export potential rather than focus on greater sustainability (World Coffee Portal 2025).

Africa

Structural obstacles of the African region

Despite large areas fit for production, Africa has consistently accounted for only approximately 10 per cent of global coffee production (ICO 2024a). Additionally, the region exhibits the highest ratio of farms per total cultivated area and a tendency for progressive fragmentation into multiple owners of previously single-held farms, leading to a landscape dominated by smallholders (General Interviews 1, Poncet et al. 2024). These producers are especially vulnerable to many of the sectoral challenges highlighted in previous sections (see section 2 Overview and section 3.2 Climate change impact). Established producers in the region, such as Ethiopia, have been employing sustainable land use and biodiversity conservation practices (Urugo et al. 2025). The country has traditionally been highly advanced in the domain of certifications, with the first certified producer cooperatives in Addis Ababa in the late 1990s (Stellmacher et al. 2010). However, Ethiopian farmers have also suggested that mainstream certifications do not adequately take into account the African context and are not able to promote conservation of the coffee forest ecosystem (Stellmacher et al. 2010). These prob-

lems are also coupled with a general lack of certification awareness among the region's farmers, especially those new to coffee production. The phenomenon, moreover, is to be read in parallel to the lack of necessary expertise or capital to convert production, resulting in difficulties when adopting either sustainable practices or high-yielding farms. For instance, new farmers are more likely to use improper tree pruning practices or complete cutting of shade trees to convert to full-sun cultivation without adequate preparation. Consequently, production models are more likely to be environmentally harmful and to progressively reduce harvests in the medium term. Indeed, the region also reports the lowest coffee productivity, underscoring structural efficiency issues (Yang et al. 2022, Poncet et al. 2024). Additionally, numerous African economies are extremely dependent on coffee exports, often representing a disproportionately large share of total foreign exchange earnings. In Uganda, for example, coffee exports generated nearly 1 billion euros in 2024, representing around 20 per cent of the country's foreign exchange income (USDA 2025). Over-dependency is often not addressed by national policies, which instead prioritise production maximisation. Emblematic in this sense is Uganda Coffee Development Authority's target of producing 20 million 60 kg bags of coffee by 2030, indirectly downplaying sustainable standards and agricultural diversification.[11] Over-dependency also amplifies the effect of environmental stressors, with climate-induced events more easily spilling over into wider economic instability. Indeed, the African agricultural systems show a low degree of climate adaptation strategies (Quarshie et al. 2023, Jawo et al. 2023). Measures specific to coffee, such as replanting of climate-resistant varieties, stumping of aging trees and the promotion of fertilisers, remain limited (Quarshie et al. 2023, Jawo et al. 2023).

Multilateral initiatives to foster sustainability

In response, African governments have begun prioritising sustainability in the coffee sector through international coordination. The 2025 G25 African Coffee Summit and the Dar-es-Salaam Declaration saw commitments to deepening certification standards, strengthening traceability systems and expanding local processing capacities (Mhagama 2025). For example, oversight bodies such as the Inter-African Coffee Organisation could help in aligning sustainability efforts in a way compatible with the African model of production, for example by expanding on the structural preference of producers for PGSs when third-party certifications are too expensive (see section 2.2 Different compliance and monitoring models) (Del Castillo 2024). In parallel, international initiatives launched under the G7 framework – such as the Green Industrialization Partnership (General Interviews 2, G7 2024a) – may foster traditional certification uptake against limited infrastructure, low access to credit and insufficient expertise in the sector. Specifically, in 2024, the Italian Presidency launched the Vision for Adapted Crops and Soils, and the Public-Private Initiative on Coffee, which also includes a global coffee sustainability and resilience fund aimed at reducing poverty and harmful environmental practices in the coffee sector (Fattibene 2025). The G7 Private-Public Initiative on Coffee aims to establish

11. Uganda Coffee Development Authority (UCDA) website

a voluntary platform for blended finance to boost the environmental sustainability and circularity of the coffee value chains, but also to develop the tools to strengthen impact evaluation, halt deforestation and increase know-how, specifically on the part of smallholders in the sector (G7 2024b).

Latin America

In 2019, Latin America and the Caribbean produced almost 60 per cent of all certification-compliant coffee globally – making the region the largest abundant source of certified coffee. Brazil, Colombia and Peru produced the largest volumes of certification-compliant coffee (Voora et al. 2019).

The domination of Latin America and the Caribbean in certification compliance reflects a wider regional pattern of high compliance. Since 2016 the area of coffee grown under voluntary sustainability standards has increased by 78 per cent.

However, uptake still varies between Central America and South America; different demand for sustainable products and their different production models all impact the certification systems used (Harvey et al. 2021).

Central America

Central America accounts for approximately 11 per cent of global coffee production (ICO 2024a). The region's main cultivation is arabica, thanks to its characteristics such as moderate temperature, volcanic soil and suitable elevations (Quesada-Román et al. 2022, Lara-Estrada et al. 2021). At the same time, territory characteristics also make it difficult to aggregate cultivation in even mid-size farms, such that small farms remain not only predominant, but structurally difficult to expand. Indeed, smallholders typically manage plots of less than 5 ha (Albertin and Nair 2024, Harvey et al. 2021). While average farm size has generally remained constant, the region has undergone a general intensification of coffee production in recent decades. Specifically, while shaded farms remain predominant, there has been a tendency to convert them into low-shade or full-sun systems (Albertin and Nair 2024, Harvey et al. 2021). At the same time, these production models have been coupled with higher agrochemical inputs and denser planting arrangements to boost productivity (Albertin and Nair 2024, Harvey et al. 2021). Indeed, the region's average productivity is considered moderate to high in global terms, but does still show substantial national variation in yield levels and capacity to respond to external shocks (Harvey et al. 2021).

Different national experiences

For instance, Honduras and Guatemala have faced similar challenges in the sector over recent years, specifically persistent outbreaks of coffee leaf rust and increased climate events. Additionally, they have both struggled with labour costs and a constant trend of coffee farmers emigrating, which has not been offset by the availability of seasonal workers (Leiva 2024, Morrell 2024). However, Honduras has shown a constant growth in output, while Guatemala has experienced a

decline in productivity (Fiallos 2025). In Mexico, intensification has also been common. The country presents advanced practices like diversified agroforestry systems, specifically shaded coffee gardens. However, farmers who have increased productivity are those who have invested in inputs, especially labour, and have increased the density of plantations (De Los Ríos et al. 2025). Farms adopting these techniques have reduced costs per unit produced over time without significantly expanding the total harvested area (De Los Ríos et al. 2025). The growth of organic and fair-trade markets in Mexico has been particularly important (Flores-Anaya et al. 2022). Certifications are largely adopted and they have also been instrumental in enabling producers to compete in international markets, especially to enter markets other than the US (Flores-Anaya et al. 2022).

South America

South America – the largest producing region with a quota between 46 and 483 per cent of the overall global production (ICO 2024a) – presents both intensification practices and on-farm size increase. However, the coffee sectors of the two largest producers, Brazil and Colombia, are still dominated by smallholders. While general productivity is constantly high in the area, those farms that have achieved a certain size obtain further substantial yields through intensified monoculture systems, usually through full sun culture and supported by significant agrochemical inputs (Poncet et al. 2024).

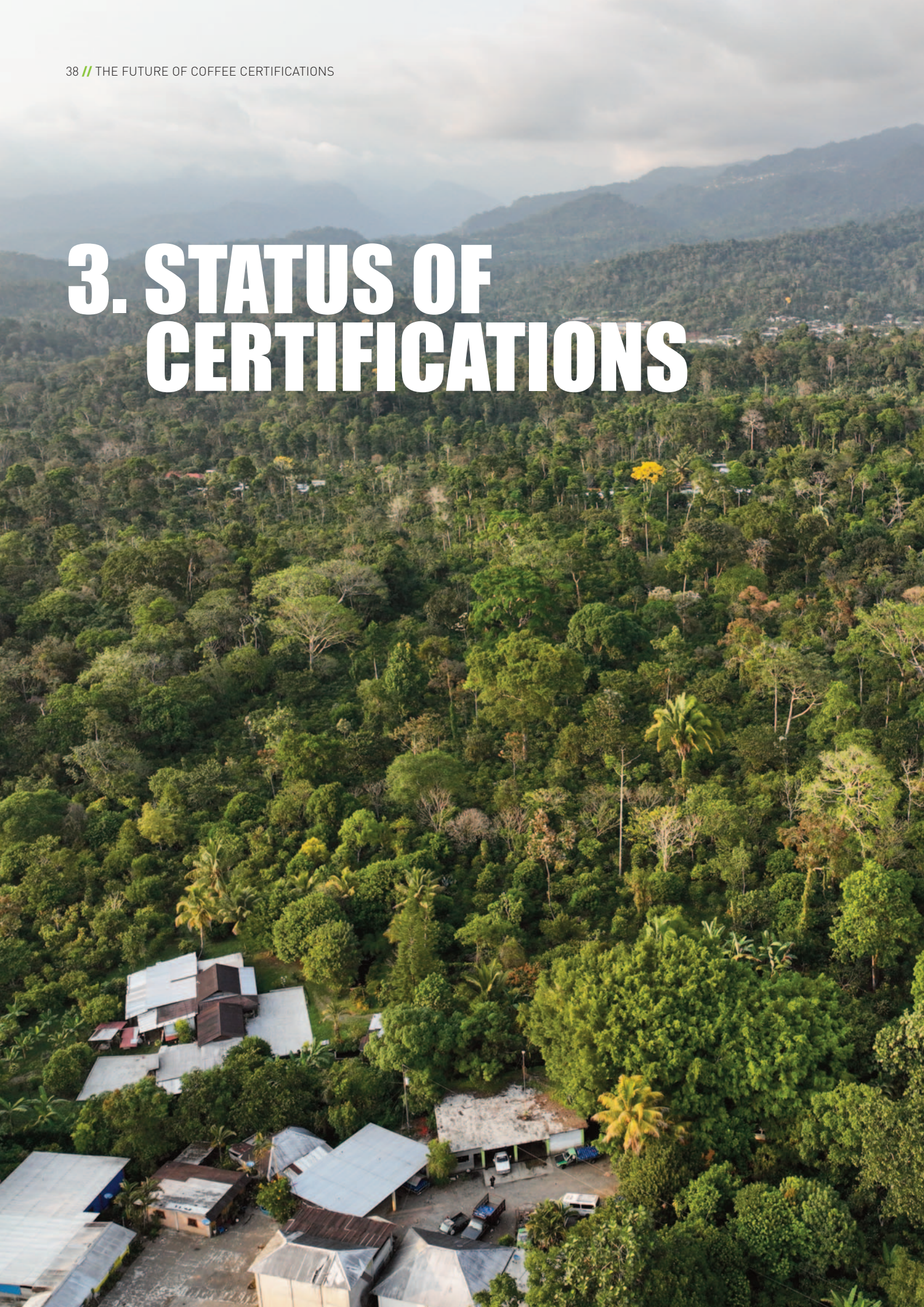
Role of Brazil

This is particularly evident in Brazil, the world's largest coffee producer, with harvests of up to 65 million bags during the productive years of its biennial cycle. Indeed, around 85 per cent of Brazilian coffee farmers cultivate plots smaller than 50 ha, indicating that mid-size farming is foundational to the country (Maguire-Rajpaul et al. 2020, Formiga 2025). Indeed, mid-size farmers have also shown organisational and aggregational capacity in regard to certification, coordinating to participate in "group certification" systems where farmers organise themselves into a formal and legally recognised producer group. Cooperatives achieved almost half of the volume certified by the Rainforest Alliance's and Sustainable Agriculture Network (SAN) joint schemes (Maguire-Rajpaul et al. 2020).

Role of Colombia

On the other hand, Colombia, South America's second-largest producer, has an even more fragmented landscape with 95 per cent of the more than half a million farmers cultivating farms smaller than 5 ha (Rubio-Jovel 2024). Certifications are widespread in the country, and they are also largely pushed by public and sectoral authorities. Indeed, the national Federation of Coffee Producers (FNC) has promoted a plan – Cafe de Colombia 100% Sostenible – which aims to ensure that all coffee sourced in Colombia will respond to sustainability standards by 2027. However, these standards will be determined internally by an FNC code of conduct (Grabs 2021).

3. STATUS OF CERTIFICATIONS



3.1 OVERVIEW: THE EVOLUTION OF CERTIFICATIONS IN RECENT YEARS

The future of certifications has been under discussion for more than a decade,[12] and the impact of several longstanding and new factors indicates that most schemes will have to undergo a significant evolution if they want to cope with the current situation and trends.

The impact of coffee price increases in particular, and of the EUDR and other regulations to a lesser extent, will likely represent a turning point for several certifications, probably for most; however, such a change follows years of decline in terms of sales for some of the schemes and of stagnation for others. This in turn has been caused by a series of variables, some external and some endogenous to certifications, affecting their capacity to expand both upstream and downstream and, ultimately, to become a dominant market force. This research has identified the following elements, which are investigated in the following sections:

- A stable or decreasing interest of consumers in certified coffee;
- Price fluctuations;
- Efficiency and capacity to deliver targets.

As at the time of writing, the EUDR has yet to be applied; its impact will likely be relevant at the global level but uncertainty remains high. The Regulation will therefore be discussed separately with a dedicated focus (see section 5 Impact of the EUDR on certifications).

A missing expansion

Due to the impact of these factors, the share of certified production for coffee has not expanded in the past decade, and has instead shrunk: in 2012 the International Institute for Sustainable Development reported that certified coffee production accounted for 40 per cent of the global total (Potts et al. 2014), but it has since then lowered to 24.7 per cent (Kemper et al. 2025). The total share of certified harvested by area was around 15.2 to 30.8 per cent in 2024. Even if coffee remains among the top three certified commodities (preceded by cocoa and followed by cotton), the expansion of certified production areas has witnessed a disappointing trend in recent times: the expansion of recent years (+4.2 per cent from 2021 to 2022) indeed follows a period of significant decrease. Minimum certified harvested area has thus declined in total by 21.8 per cent in the period 2018–2022 and, among major certified commodities, it was the only one to lose share (Kemper et al. 2025). Indeed, the remarkable growth Rainforest Alliance witnessed in the same period (the only one among major players) was mostly due to its merger with UTZ.

While certified production has been declining, paradoxically areas that can be potentially compliant with sustainability standards have increased, reaching 50–55

12. In particular since the publication of Potts et al. (2014)

The contradiction with area enlargement

per cent of total production areas in 2022 (Panhuysen and de Vries 2023). This trend highlights a growing discrepancy between the offer and the demand for certified coffee, and at the same time the existence of two different trends: on the one hand, a series of factors have made improving the sustainability of coffee farming easier, cheaper and more convenient for farmers. In particular, this has been due to a general betterment of agricultural practices, more awareness of the environmental impact of production also by farmers and intermediaries, and expanding support for them by NGOs and private players. On the other, a significant share of this production has been bought as conventional coffee, despite the fact that it could have been sold with very little effort as certified: in 2021, certified coffee purchase counted only for 21.6 per cent of total (Panhuysen and de Vries 2023). Such a discrepancy is a result of a variety of factors (including coffee prices and structure of the market), but it is one of the main indicators of the decreasing – or at least not growing – interest of consumers in certified coffee.

3.2 A STABLE OR DECREASING CONSUMER INTEREST IN CERTIFIED COFFEE

One of the major elements preventing an effective expansion of certified coffee is a decreasing or insufficiently growing interest on the part of consumers at the global level – although with some differences among different countries and regions.

In general, coffee demand has grown fairly steadily in the past decade (Foodcom Experts 2025), although with some fluctuations: the 2.2 per cent increase in 2023–2024 was preceded by an almost equivalent decrease in 2022–2023 and by a remarkable increase (4 per cent) between 2021 and 2022 (ICO 2024a). Even the major disruptions caused by the Covid-19 pandemic had only a limited impact (thanks also to quickly shifting consumption patterns) (Bermúde et al. 2022). However, sales of major certified coffees have been fluctuating significantly – Fairtrade, one of the most successful in the past decade, benefitted from a 23 per cent increase between 2023 and 2024 (Fairtrade Max Havelaar 2025), but also faced a 7 per cent decrease the year before(Fairtrade Max Havelaar 2024).

Consumer attitudes

Generally speaking, in the past decade consumers have been increasingly interested in eco labels, because of the rising global awareness on environmental issues such as plastic pollution, the impact of chemicals on human health, and climate change. This trend has resulted in a robust consumer willingness to pay more for products with sustainable packaging or sustainable production methods (Frey et al. 2023). This is true also for coffee, and indeed certification labels are at least partially receiving some benefits from this surge in interest towards sustainability (Merbah and Benito-Hernández 2024).

However, as discussed above this has not resulted in a major increase in sales of certified coffee, and reasons for this are several. First, although coffee demand is relatively inelastic, the changing global economic conditions have likely had an impact on it (ICO 2024a), and certified products are more exposed to such trends: since these are more expensive and often perceived as a luxury by consumers, consumers are more likely to stop buying them as their purchase power decreases (Amasino et al. 2025). Factors such as the high level of inflation in the EU and in the US in recent years (peaking at 10.6 for Europe and 9.1 per cent for the US in 2022) (Eurostat 2022, Ball et al. 2025), the decrease in income due to the pandemic, and the uncertainty over the international political framework have thus likely contributed to the decrease in the interest of consumers towards certified schemes (Ball et al. 2025).

Structure of demand growth

Even the structure of the demand growth has likely played a role. In some of the most consolidated markets for certified coffee, particularly Western Europe, overall coffee demand has stagnated, thus limiting the growth in certified coffee purchases (Foodcom Experts 2025). China and India have witnessed a remarkable increase instead (respectively 15 per cent and 12 per cent in 2024), but consumers were mostly interested in quality coffee, ready-to-drink products and coffee-based beverages (Wang 2024) (which are only sometimes associated with sustainability standards and certification schemes), rather than certified coffee per se. Despite being some of the most promising markets for coffee, Chinese (Interesse 2022) and Indian consumers have so far dedicated little attention to certified coffee, and even their own certified production has been very limited – only in January 2025 did India launch a national certification scheme, with the aim of boosting the sector (World Coffee Portal 2025).

Label fatigue

Many, even among roasters and buyers (General Interviews 1, Mexico Interviews 18-19), have also identified a sort of "label fatigue" as a key factor, i.e., a lack of response by consumers in shifting consumption patterns as they feel overwhelmed by the information provided or the availability of different products. Indeed, while major certifications number four or five, through the years schemes have multiplied and became particularly varied, as private companies have started developing their own (see section 2.3 Kinds of certifications) (Starbucks 2024). This proliferation has contributed to an increased confusion for consumers, decreasing their awareness on processes and on the reliability of brands, and ultimately undermining their trust and interest in certified coffee as a whole. Such a perception has been likely further increased by a proliferation of sustainability labels and certifications across other sectors of consumption as well, often in an unregulated and uncoordinated way that frequently resulted in false claims or greenwashing. Even in the EU, one of the most environmentally regulated regions, as of 2025 the situation concerning eco-labelling is still very heterogenous and confused (Sanye Mengual et al. 2024), and indeed a "Green Claims" Directive (Kurmayer 2025) has

been proposed to address the issue (although, at the time of writing, the proposal is facing significant opposition and its future is uncertain).[13]

Consumer perception of certified coffee

Consumer perception of certified coffee has also changed. Coffee (and cocoa) got significant attention as major causes of deforestation in the 1990s and early 2000s; yet, in recent years other commodities have received more visibility (particularly palm oil, beef and soy). This trend is due to a decreased impact of coffee farming on global forests, but also to destructive events such as the 2016 forest fires in Indonesia (Chaigne 2023) or the drought in the Amazon in 2023 (Eschenbacher 2025) that highlighted the significantly greater impact of other commodities. Some players also believe that consumers are increasingly perceiving that the production of major brands is implicitly sustainable (even when not explicitly certified), and are thus not willing to pay an extra price for the certification label (General Interviews 1, Mexico Interview 18). This has been strengthened by the significant increase in internal standards by coffee companies as well as private certifications, and will be likely further empowered by the EUDR since it will increase the minimum sustainability requirements for all companies (see section 5 Impact of the EUDR on certifications). Consumers are also more interested in other aspects that were not originally the core business of certifications; for instance, a low used of agrochemicals is now generally preferred over biodiversity and ecosystem protection (Gatti et al. 2022).

This situation is however different when looking at Organic coffee, one of the few certifications that has shown a significant expansion over the past years. Indeed, the harvested area grew by 4.6 per cent globally from 2018–2022 (a growth that was only matched by that of Fairtrade) (Kemper et al. 2025), with a particularly remarkable increase in 2021–2022, where harvested area grew by 24.6 per cent. The Organic certification is also receiving more interest than others in emerging markets (Oakley 2024) (particularly China) (Interesse 2022).

Reasons behind this difference are several; unlike other, more niche schemes, such as the Smithsonian Bird Friendly Certification[14] (see section 2.5 Focal areas of certifications), the scope of Organic is likely more easily understood by consumers. As it puts the accent not only on sustainable, but also on the health and quality aspects of production, it is preferred also by consumers who have less environmental awareness. Organic also likely benefits from an increasing interest towards the wellness benefits of quality coffee, which has been a dominant feature of communication in the sector in recent years (Castellano 2021, NHLBI 2025). Finally, as consumers often directly associate organic coffee with traditional practices that, in the general public's perspective, produce a higher quality product, the certification is also growing thanks to the increasing attention to specialty coffee worldwide – expected to grow globally by 10.5 per cent between 2025 and 2030 (Grand View Research 2025).

13. European Commission DG for Environment website: *Green claims*
14. Sucafina website: *Smithsonian Bird Friendly Certification,*

3.3 PRICE FLUCTUATIONS

Coffee price variations have also been a crucial factor influencing the success of certification schemes, particularly in recent times due to the historic spike global markets witnessed. Indeed, as discussed in section 2, while the instruments available to support producers are several, price premium has been one of the most effective and applied, and above all likely the most appreciated by farmers (Indonesia Interviews 3-7, Brazil Interviews 1-4, Mexico Interviews 1-15). The unprecedented surge in prices that took place between 2023 and 2025 however significantly reduced (and in some cases nullified) the capacity of schemes to pay an additional economic reward to farmers, thereby remarkably reducing their impact.

The peak of coffee prices

Indeed, in February 2025 coffee prices reached an all time high of US $4.40/lb for arabica futures, while the price for robusta increased 70 per cent in real terms between 2023 and 2024 (58 per cent for arabica) (Amrouk et al. 2025). This increase surpassed even the extraordinary situation of 1977, when arabica futures reached US $3.39/lb because of the Black Frost in Brazil and a complex political situation in Angola and Colombia (Maidenberg 1977). After a decline in the first half of the year, prices have however increased again, almost matching the February peak in September 2025.[15]

The price peak and its causes

The current raise has been mostly due to the combination of adverse weather which hit Brazil, Vietnam and Indonesia.[16] In Brazil, a severe drought and hot weather significantly impacted production; while in 2023/2024 it declined by 1.6 per cent (instead of the expected 5.5 per cent increase) (Amrouk et al. 2025), some producers witnessed their harvest decline by two thirds and more (Dias and McCory 2025). As stockpiles in the country are now at the lowest level ever recorded (Samora and Teixeira 2025), this drought also affected producers in other Southern and Central American regions, as in the case of the Veracruz area in Mexico (Mexico Interviews 1-4).

Production in Vietnam and Indonesia was even more affected. The first suffered from droughts that curtailed production in 2023/2024 by 20 per cent, while heavy rains in the second led to a decrease of circa 16.5 per cent for the same period (Amrouk et al. 2025). Exports decreased by 10 per cent in Vietnam and 23 per cent in Indonesia, and the decision of several Vietnamese farmers to withhold some of the supply because of increasing domestic prices put further pressure on global ones.

Bad weather conditions are however not the only reason behind this surge, which comes in a period of growing costs for coffee production. Global trade disruptions are indeed taking a significant toll, particularly increasing transportation costs

15. Trading Economics website: *Coffee*
16. USDA website: *Production – Coffee*

Additional causes for the peak

and the uncertainty surrounding Trump's tariff plans. While, at the time of writing, most of the duties have not been finalised, rather have been declared and then paused several times (as in the case of Mexico and the EU), the 50 per cent tariff Trump applied against Brazil in July 2025 could have a significant and almost immediate distorting effect on coffee prices globally (Ionova and Nicas 2025). The trade deal the US announced with Vietnam in July 2025 (Buchwald and Jaramillo 2025) may lessen the impact, but at the time of writing no details of the agreement have been revealed, aside from a general statement that Vietnamese exports will receive a flat 20 per cent tariff (instead of the 46 per cent Trump originally threatened). It is however not clear if this will be the final duty and will thus substitute for WTO most-favoured-nation rates, or if an additional tax will be added (Xiao 2025). Similarly, it has not yet been defined if coffee may benefit from an exclusion (on the grounds that, as the US has almost no domestic production, there is no competition between US and Vietnamese coffee).

Energy, labour, agrochemicals prices

Increasing costs for energy, labour and agrochemicals have also contributed to the surge in coffee prices. The Brazilian droughts have indeed also affected the country's hydropower, which is a dominant source of electricity in the Minas Gerais and Sao Paulo states (which are crucial for coffee farming), thus raising prices of electricity.[17] While EU and US roasters have faced an even greater increase in energy-related costs, fuel prices have increased worldwide (IEA 2025a), thus leading to greater transportation costs. Fertiliser prices have however increased even more; they reached an all-time high in April 2022 (YCharts 2025) due to the war in Ukraine and sanctions on Russia (two main players for the production of fertilisers, particularly those based on nitrogen, potassium and phosphorus), as well as because of a tightening in Chinese phosphate exports (Charles 2023b). As a consequence, phosphates and potash prices witnessed a 149 per cent increase between September 2022 and September 2023, adding to an already high price level because of the Covid-19 pandemic disruptions (Charles 2023b). Prices have since then decreased, but still remain higher than pre-pandemic and pre-war times (Baffes and Temaj 2025). Fluctuations in the cost of inputs such as ammonia, natural gas and liquid sulphur amid still strong global geopolitical tensions also cast a shadow on the future affordability of fertilisers.

Labour costs are also playing a significant role in this surge. Labour is the largest expense paid by coffee farmers, covering between 40 to 60 per cent of total production costs (Smith 2022), and has been increasing for years due to a combination of global and local factors, although not evenly and not everywhere. In the case of the Veracruz region of Mexico, for instance, several producers complain about a significant worker shortage, particularly during harvest season, which in turn increases demands for higher wages (Mexico Interviews 1-8). The most common cause indicated by farmers is generational change and rural depopulation (Mexico Interviews 1-8). This is also the case in other countries in Central and

17. IEA website: *Energy system of Brazil*

South America, particularly Colombia (Smith 2022) and Costa Rica (Tico Times 2024), and it is generally more common where coffee is cultivated on slopes and not on flat ground (which in most cases requires hand-picking), and where production is smaller and family-led. There are also other factors influencing these trends: the spread of clonal plants (which are usually more resilient but tend to flower less gradually) and the climate crisis are decreasing the harvest time span in some regions (as in the Mexican Chiapas). This in turn concentrates the demand for workers in a much shorter period than in the past, reducing their availability and thus increasing demands for wages (Mexico Interviews 1-4, 9-15). Workers' availability and compensation can also be affected by local factors; for instance in southern Chiapas, in the area of the city of Tapachula, seasonal migration from nearby Guatemala has historically ensured a steady supply of workers for coffee plantations, but the appreciation of the Quetzal against the Mexican Peso has decreased the economic appeal of coffee picking and increased labour costs (Mexico Interviews 15-16).

Impact on certification schemes

Price spikes like the current one impact certification schemes in different ways, some adversely, others positively. The main drawback concerns the price premium which, as discussed, is among the strongest tools (if not the strongest one) available to schemes: coffee prices this high make paying the premium much more complicated for players running the certifications, as they already have to absorb an increase which is economically unsustainable for most companies even in the short-medium term. High coffee prices also make the minimum price schemes such as Fairtrade offer redundant – in July 2025, when prices have dropped almost 36 per cent compared to the spike,[18] they still are 63 per cent higher than Fairtrade's minimum price.[19] Even the premium price becomes a much less relevant incentive for farmers: the 0.17 euro Fairtrade pays to farmers in addition to the commercial coffee price represents 13 per cent of the average coffee price in the past ten years,[20] but it was only circa 4 per cent when prices peaked in February 2025.

This problem has relevant implications for most certification schemes: first, it makes even sourcing coffee a more complicated exercise, as not only do coffee farmers have less incentives in selling to them, but also because of the competition with new intermediaries and buyers that are trying to exploit the situation (Charles 2025a). Furthermore, specialty coffee brands can leverage on their focus on quality to increase prices and pass some of the costs towards consumers (or to the roasters selling their beans), but this could be a complicated operation for several schemes as they are already battling a declining or steady interest by shoppers (see section 4.2 A stable or decreasing consumer interest in certified coffee). A remarkable price increase could even represent a tipping point for operations that, even in normal conditions, struggle financially because of high operating costs or inefficiency (see section 4.4 Efficiency and capacity to deliver targets).

18. Trading Economics website: *Coffee*
19. Fairtrade International website: *Coffee*
20. Trading Economics website: *Coffee*

High coffee prices can however have a few positive impacts on certifications. While it is true that schemes are less appealing when prices are high, they are effective in protecting farmers from price fluctuations, from their sudden fall, and from periods of protracted low prices. Prices were indeed very low until 2020 at least, an issue which had a strong impact on producers, and on smallholders in particular (Rainforest Alliance 2020). As, at the time of writing, prices are now increasing after falling, it is be crucial to understand if this increase is, at least to some extent, a new plateau (as some analysts believe) (Charles 2024b).

During a period of high prices, certifications can also help with a more equal redistribution of the higher earnings. Indeed, in some cases producers directly and proportionally benefit from the increase (Mexico Interviews 1-15, General Interviews 2); however, in others most of the increment is lost among the different intermediaries in the supply chain, and producers receive little (Goodman and Cegarra 2025, Bambridge-Sutton 2025). Thanks to their direct relation with producers and the focus on fair compensation (which is common to almost all certifications now (see section 2.1 Main features of certifications), schemes can improve the sharing of benefits, particularly concerning smallholders.

Finally, certifications can promote and support the employment of the additional earnings towards investments in improving the efficiency of production. Indeed, in price surges many among farmers tend to prioritise immediate profit over long-term investments, often to compensate for the periods of instability and low prices (Kallivrousis 2024). Investments in production are however increasingly necessary for coffee farmers to increase their resilience against the climate crisis and will be even more so in the years to come; in the case of Brazil, for instance, farmers are now significantly extending the use of irrigation, which in the past was done for less than a third of total cultivation (Teixeira and Samora 2025). As one of the crucial tasks of certification schemes is indeed to improve coffee farming (see section 2 Overview), they can help guarantee that at least part of the earnings during price surges are used with a long-term perspective in mind.

3.4 EFFICIENCY AND CAPACITY TO DELIVER TARGETS

The success of certification schemes also comes significantly (and to some extent obviously) from their own ability to live up to their promises and consumer expectations, and efficiently achieve their objectives, such as providing farmers with a premium for their sustainable production and guaranteeing the sustainability of production. On average, it is well established that independent certification schemes such as Fairtrade or Rainforest generally provide a higher income to farmers and contribute to the expansion of agricultural practices that are envi-

ronmentally and socially sustainable (Jones et al. 2024). While the net contribution of most schemes is thus clearly positive, it is however not homogeneous and certifications have a different impact depending on countries, regions and even across producers. In the case of Costa Rica (Dragusanu et al. 2022), for instance, the diffusion of certified coffee has in most cases resulted in higher income for farmers. On the contrary, cases in Ethiopia and in Nicaragua showed very little impact on households (Jena and Grote 2022). In this sense, there are a few elements affecting the ability of certifications schemes to deliver their target, which this research has identified as the following:

- Capacity to adequately redistribute the price premium;
- Balancing expansion with reputation and sustainability standards;
- Keeping quality high and certifications accessible to farmers.

Capacity to adequately redistribute the price premium

For certifications to be successful it is vital that farmers receive the largest share of benefits from trade of certified coffee. This is however not always the case, and the most frequent accusation that has been addressed to schemes is indeed that they benefit a variety of players across the supply chain, but in some cases little arrives at the producer (Charles 2024a, Sylla 2014). Quantifying the actual amount of premium money that goes to farmers is however not an easy task; in the majority of cases, NGOs or companies running the schemes do not deal directly with producers, but interact with them through intermediaries, such as cooperatives or private buyers. While part of the premium should go directly to farmers, part must be used by the intermediary to build infrastructure (collection points, roads, nurseries, etc.) or support production (by, for instance, buying plants or organising capacity building). This is however in most cases managed by the intermediaries themselves, with in some cases limited supervision by the organisation running the scheme and, especially in times of low prices (Indonesia Interviews 1, 3-7), much of the premium may be held back from producers. This is probably why researchers have sometimes witnessed a general improvement of agricultural practices and even yield after the introduction of certifications in certain regions, but very limited increase in producers' income (Gather and Wollni 2022). Generally speaking, the effectiveness of such schemes is frequently correlated to the reliability and efficacy of the network of intermediaries on which they rely (Indonesia Interview 1, Mexico Interview 19, Brazil Interview 5). Failing to deliver a substantial price premium directly to producers is a major issue, since the farmers' focus is primarily concentrated on the financial advantages of certifications; if this fails, they may lose interest and trust in the schemes, complicating the procurement process. It is also worth noting that, according to most research, low skilled workers appear to receive little to no benefit from certification schemes[21] (Dragusanu et al. 2022, Jena and Grote 2022).

Another critique relates to the country focus of several schemes, particularly Fairtrade, as they have been accused on concentrating on middle-income countries,

21. As in the case of Costa Rica, Ethiopia, India and Nicaragua

rather than on developing ones – which, however, would be the ones in most need of the advantages offered by certifications. This was discussed particularly in the early 2000s when the geographical scope of certifications was much more limited and exclusive – Fairtrade for instance did not include several Sub-Saharan coffee producers, like Ethiopia. However, this has been addressed already in the early 2010s by most schemes, which now have a complete representation of global producers (although with still a limited inclusion of African farmers, particularly when compared to Latin America).

Balancing expansion with reputation and sustainability standards

Process of expansion of certifications

One of the most important and yet complicated tasks for certifications is balancing the need to scale up trade, while maintaining high sustainability and ethical standards. This requirement became evident particularly when, in the late 90s and early 2000s, Fairtrade switched from simply connecting local coffee cooperatives to alternative trade networks, to selling its products through major commercial operations such as Nestlé. While this transition was required to increase the reach of the certification, Fairtrade had to procure much larger volumes of products, with a coherent quality and features consistent with the brands' needs. This need implied easing and opening the certification process beyond small businesses also to plantations and larger farms, as well as towards a number of different intermediaries (Smith 2014). This process has been common to most historic certifications, while newer ones were created with a bigger focus from the start, but it also reduced the knowledge organisations have of their supplier networks, as well as the capacity to conduct audits. This trend has significantly increased the risk of including non-ethical or non-sustainable producers, which indeed resulted in a number of scandals in the past years that had a lasting impact on the reputation of several schemes (Mexico Interview 18). To some extent, expanding the reach of certifications also led to a decrease in the minimum requirements to obtain the certification; the most notable case is perhaps the "Contract Standard" (Smith 2014) of Fairtrade or the Rainforest Alliance's "assess-and-address" (focused on child labour) frameworks (Fairtrade Alliance 2021), which allow producers that do not yet comply with the full organisational standards to be certified, provided that they adopt the required changes in the following years. While these instruments provide much-needed flexibility, they also potentially reduce the solidity and integrity of schemes.

Scandals, lawsuits and allegations of abuses have been indeed another crucial phenomenon touching certifications over the years. Cases have been several, even recently: in 2024, Starbucks was sued because of alleged workers' rights abuses in farms in Guatemala, Kenya and Brazil where the company sourced certified coffee and tea, apparently despite documented violations (Abou-Sabe and Kaplan 2024). A similar case was reported by Mongabay in Brazil in 2021, involving Starbucks and Nespresso (Camargos 2021), which were also part of another case

of labour rights violations in the country uncovered by Repórter Brasil in 2019. The organisation also investigated cases relative to Rainforest Alliance/UTZ coffee production in Minas Gerais in 2017 (Phillips 2017), which has also been at the centre of other alleged wrongdoings concerning other products, such as pineapples (Shah 2020) and cocoa (Choy 2024). The scheme also came under scrutiny following the 2021 Greenpeace report "Destruction: Certified", which supported the standards of the organisation but questioned its implementation and effectiveness (Greenpeace 2021).

However, compared to the number of certified producers, the number of cases (or alleged cases) is low, particularly for the coffee sector. It is equally true that organisations must balance accuracy and reliability with the need for flexibility in countries that are often socially and politically complicated, along with the need to expand their work. However, even limited revelations of wrongdoings can have a major impact on certifications, since consumers extend their preference to certified products almost entirely because of their reputation. Especially when prices are high, the choice of consumers could easily change if they perceive the higher cost of their coffee is not delivering the results it should. It is however very complicated to quantify how much a case, or a scandal, can impact the reputation of certifications, as often consumers' awareness is very limited and mostly based on a general perception. In this sense, the trust consumers place in schemes depends on the combination of several factors, such as the visibility of certifications (the more well-known they are, the greater the trust), their number (since a proliferation can create confusion and undermine confidence) and perceived independence.

The impact of in-house private certifications

Concerning the latter, the appearance of sustainable and ethical labels run in-house by major companies has become a key issue for consolidated certification schemes; this was highlighted in a 2019 Guardian article, "Is fair trade finished?" (Subramanian 2019). The piece was published following the decision of the British supermarket chain Sainsbury's to ditch the Fairtrade label for its tea, and similar decisions for coffee, cocoa and other products by companies such as Starbucks, Mondelez and Nestlé. Sainsbury's argued that the decision was taken because of a longstanding dissatisfaction with Fairtrade on transparency issues, particularly regarding the employment of the price premium by farmers, and how much they actually received. Yet, procedures set up by the supermarket chain in substitution for Fairtrade seemed even more complicated and less effective (Subramanian 2019) and, in May 2025, Sainsbury's finally dropped this attempt and came back to the Fairtrade certification for tea (Wood 2025).

The problem with private certifications is that in several cases either they do not have an external, independent audit system, or it is much weaker than that of independent, consolidated schemes; and yet they compete on the same footing as

uninformed consumers often cannot distinguish between the two. Their limited effectiveness can thus further damage the overall reputation and perception of certifications by shoppers who, especially in times of widespread greenwashing, have limited tools to navigate the landscape of coffee products. It also decreases the interest companies may have in selling products certified by external organisations, since this is much more expensive, and perhaps not more effective, than doing it internally.

Keeping certifications accessible to farmers

Another established issue for certification schemes is keeping associated costs low for farmers, as well as bureaucracy and other paperwork, in order to keep them accessible and convenient.

Fees for farmers

Most schemes (although not all of them) ask for different fees for farmers to be certified, in addition to satisfying the organisation's standards (in the case of Rainforest Alliance, for instance, there are four different fees) (Rainforest Alliance 2025a). These costs differ depending on the label, on the size of the farm, on the volumes of coffee produced and on the region considered; in most cases however farmers pay audit fees (often to organisations outside the certifying body), a royalty fee based on production, in some cases a fee per hectare of production, and a flat fee to obtain the certification. The latter is sometimes paid only once, sometimes every time the certification process is repeated (usually every three to five years).

In most cases, these fees can be significant for farmers, but are largely economically sustainable. However, their prices can still represent an obstacle for producers to join schemes: in times of high prices and strong market demand, farmers may have little incentive to invest money, as the financial reward from certified coffee may be too small. When prices are low instead, they may not have the resources, or may prefer to withhold them waiting for the market to improve, to obtain the certification.

Bureaucracy and paperwork

In addition to this, certifications usually require a substantial load of paperwork that farmers may not be accustomed or willing to do. This documentation concerns the geolocalisation of the farm, the quantities and kinds of agrochemicals employed in the field, and the people employed both throughout the year and specifically for the harvest season. Some countries already demand significant paperwork from farmers (this is for instance the case in Indonesia) (Mexico Interviews 1-4) or have centralised, advanced systems for gathering and consolidating this kind of information (as in the case of Brazil) (Brazil Interviews 1-4). Farmers in those countries may thus be more familiar with this kind of process and the bureaucratic burden of certifications may be smaller, also because some of the information requested is already collected to comply with national regulations. On the other hand, data-gathering methodologies may differ between na-

tional requirements and certification schemes, and farmers may not be willing to compile further paperwork – this largely depends on the degree of coordination between national legislation and international certification schemes.

It is worth noting that in most cases certification costs are too high to be economically convenient or, in some cases, even accessible to individual smallholders (who also have often very low awareness of schemes) – Rainforest Alliance itself recommends that "Smallholders may want to organize and seek certification as a group to reduce expenses" (Rainforest Alliance 2025a). As a consequence, certification is usually obtained either directly by major producers (ranging from 10–15 to more than 50 hectares, depending on the country considered) or, more frequently, by cooperatives and other intermediaries on behalf of smaller producers. These players frequently entirely or partially cover the costs for the certification process (Indonesia Interviews 3-7, Brazil Interviews 1-4, Mexico Interviews 1-15), thereby reducing the burden for farmers. However, in some cases intermediaries only advance the budget for certification, which is then reimbursed though sales at later stages (Indonesia Interview 1). Generally speaking, this is however another proof of the crucial role played by cooperatives and buyers in increasing the reach of certifications.

4. IMPACT OF THE EUDR ON CERTIFICATIONS

The EU Regulation on Deforestation-free Products (EUDR)[22] is among the most disruptive elements currently affecting the trade of agricultural products, with a particularly significant impact on coffee and on certification schemes. The Regulation only covers EU imports but, considering that European demand is circa one third of the global total (CBI 2025), its impact could be particularly relevant on a global scale (particularly if other countries choose to follow the EU's approach).

Structure and requirements of the EUDR

The EUDR is a one-of-its-kind piece of legislation, since it is the first to be aimed at preventing deforestation by addressing its root cause – i.e., agriculture – through regulating agricultural imports into the EU. Previous attempts by the EU and other players indeed only focused on timber trade (as in the case of the EU Timber Regulation or China's 2019 Forestry Law) (China 2019). In this sense, if successful it could represent the first, effective tool to address the issue of deforestation after decades of failed attempts.

The EUDR imposes that companies must prove that all imports of the seven commodities covered by the Regulation (coffee, cocoa, timber, beef, palm oil, rubber and soy) have not caused deforestation in the production process; as a consequence, it requires importers entering the EU market to build a traceability system to collect and consolidate the supply chain data, as well as to select producers that are compliant with the Regulation (and which then do not represent an encroachment risk). Penalties of the EUDR are relevant; they include fines of up to 4 per cent of the total EU turnover of the company for each non-compliant shipment (which, for major European coffee companies, can reach the tens or even hundreds of million euros), confiscation of goods and, in case of repeated offenses, even a temporary exclusion from the EU market.

Impact on certifications

At the time of writing the application of the EUDR has been delayed by one year, and larger companies (the first to be affected by the Regulation) will have to abide by the new rules as of December 2025, while smaller players will have another six months to prepare (by June 2026). It is thus complicated to understand what impact the EUDR will have on coffee certifications, but it will be likely a major one. Opinions vary; most organisations running certifications officially support the Regulation, as in the case of Rainforest Alliance (Rainforest Alliance 2025b), while players in the sector believe it may have a detrimental effect on schemes (General Interviews 2), going as far as stating that it will be a "nail in the coffin" for labels that have been already suffering in previous years (Mexico Interview 18). Even among certifying organisations positions are varied: in a August 2024 statement (Fairtrade International 2024), Fairtrade supported the EUDR, but largely criticised several of the Regulation's shortcomings, requesting that the European Commission supply "more financial support and clarification of the technical terms". In February 2025, a report by Coffee Watch revealed hostile lobbying against the EUDR by the German and by the European Coffee Federation

22. European Commission DG for Environment website: *Regulation on deforestation-free products*

which, together with major companies, also represent organisations such as 4C, Rainforest Alliance and Fairtrade Deutschland (Coffee Watch 2025).

The main issue between the EUDR and certification schemes concerns potential overlaps: indeed, the Regulation demands that companies trace products and prove environmental sustainability (even if only from the point of view of deforestation), as well as the legality of production – tasks that are the core business of most certifications. Although there are some differences in scope, especially with some schemes (the EUDR does not have a focus on fair remuneration like Fairtrade, for instance), the overlaps between the activities of most certifications and what coffee importers will be required to do from December 2025 is evident. There will furthermore be other impacts as well: among others, the EUDR will likely result in a consolidation of some supply chains because of the tracing requirements, with a reduction in the number but also a possible empowerment of intermediaries. This will likely have positive effects on the organisation holding the most reliable and strongest networks.

Considering the uncertainty still surrounding the future of the Regulation, it is thus not clear yet what exactly will be the full impact of these changes. This research has however identified two main outcomes to be expected, which are opposed but not mutually exclusive:

- Competition between certification schemes and other tools for EUDR compliance;
- Integration of certification schemes into EUDR compliance.

4.1 COMPETITION BETWEEN CERTIFICATION SCHEMES AND OTHER TOOLS FOR EUDR COMPLIANCE

Among the possible outcomes, the EUDR could make certification schemes redundant, further increasing the decline of the most troubled among labels, even leading to their disappearance (Mexico Interview 18). This result could be mostly a consequence of the issues negatively affecting certifications (see section 4 Status of certifications), and of the proliferation of private certification schemes (see section 4.1 Overview: The status of certifications in recent years) (Subramanian 2019). Since, under the Regulation, tracing will become compulsory for all EU imports, companies may decide to adopt their own in-house systems, which are cheaper and easier to manage than independent ones, especially as these will have to be applied not just to the relatively small trade of certified coffee, but to all shipments directed to Europe. These systems can be developed by roasters and coffee companies (as in the case of Starbucks), as well as by major exporters, such as NKG. This is already the case for some companies; Exportadora de Café California in Mexico has for instance accelerated the deployment of its own tracing system as a consequence of the EUDR (Mexico Interview 19).

Variables influencing competition among different tools

There are a few elements supporting this outcome. At the time of writing there is still much uncertainty on the actual application of the EUDR, particularly about how rigorous checks on shipments will be, how the risk evaluation the Commission published for each exporting country[23] will impact the monitoring of compliance, and even details concerning evaluation of cases of deforestation. In July 2025, the European Parliament (EP) also rejected the risk evaluation the European Commission had to deliver as part of the Regulation. The risk evaluation is supposed to provide an estimation of the deforestation risk for each trading partner of the EU, but this evaluation has proved particularly controversial because of a number of issues, particularly because of the complexity in giving a single assessment to heterogeneous and vast countries such as Brazil. The EP rejection of the proposed list does not require the Commission to take any specific action (Cater 2025), but adds further confusion to an already complicated picture. Companies may then decide to rely on an internal system as it will grant them more flexibility and, since those frameworks are designed largely with EUDR requirements in mind, they could be more fit for that specific task. As the Regulation will also increase costs across the industry, in a time in which coffee prices are already at a record high, it will be even more likely that companies would prefer a cheaper and quicker option.

The negative impact on certifications could be twofold: on the one hand, they could lose a significant share of their total sales (as most are done through major brands, which will likely reduce their purchases and rely on their own certified production). Independent certification schemes would also face much more competition from private schemes, since they will likely multiply, consolidate and gain more visibility as a consequence of the application of the EUDR.

4.2 INTEGRATION OF CERTIFICATION SCHEMES INTO EUDR COMPLIANCE

Potential positive impact of the EUDR

To some extent, the EUDR could also have a positive impact on certification schemes. While it is true that several major companies are delivering their own systems based on previous attempts, several are starting from scratch – a process which can be long and expensive, and where mistakes could be quite onerous. Major certification organisations instead have systems that took relatively little effort to be made EUDR-compliant (Peterson Solutions 2024): in January 2024 4C launched a suite of services for the Regulation concerning coffee and cocoa, which companies are already employing (4C Services 2024b). Rainforest Alliance also published its "Alignment with the European Union Deforestation Regulations (EUDR)" for coffee and cocoa in December 2023, to address the differences between the Regulation requirements and the organisation's standards (Rainforest Alliance 2023a). In this sense, independent certification schemes

23. European Commission DG for Environment website: *Country classification list*

could be preferred by companies that do not have their own tracing systems and deem it too expensive to develop these, as well as by those that do not want to risk sanctions using less consolidated systems. Producers and intermediaries that already have a strong connection with these organisations may also decide to expand certified production to cover all exports towards the EU.

As the quantity of potentially certified coffee is already much higher than the amount actually sold (see section 4 Status of certifications), this could be done in a relatively quick and cheap way. As a consequence, the push offered by EUDR compliance could help reduce the discrepancy between the two values and ultimately expand the reach of certifications. This scenario will however largely depend on whether independent certification schemes will be more expensive than alternative options for EUDR compliance (and by how much), and if consumer interest in labels will justify this potentially greater cost.

5. FUTURE OF CERTIFICATIONS

While certifications have been facing a rapidly changing coffee market for almost a decade now, the combination of the application of the EUDR and other disruptive elements, such as high coffee prices, can represent a turning point for most independent schemes. Certifications will indeed be growingly affected by the increase in production and trading costs, a possible new plateau for coffee prices, the growing competition with in-house, private certification systems, and a greater amount of bureaucracy and paperwork as a consequence of the EUDR. They will thus need to change and adapt to the new framework, focusing on their strengths, reducing inefficiencies, ultimately delineating a new role for themselves in this already mutated situation.

This research has identified a few core elements on which most schemes may focus, which are not mutually exclusive:
- Supporting the application of the EUDR and other legislation;
- Taking a new approach to consumer preferences;
- Expanding their role in farmer support.

5.1 COMPETITION BETWEEN CERTIFICATION SCHEMES AND OTHER TOOLS FOR EUDR COMPLIANCE

Competitive advantage in EUDR compliance

Even if some private companies are already developing their own systems, EUDR compliance will likely be complicated, requiring an established expertise in tracing and other key elements for many enterprises that are not able to develop such instruments (or which believe it will be not be convenient to do so internally). While there is a growing number of third-party services offering tools to comply with the Regulation, also certification bodies are already going in this direction – as discussed in section 5.1, major certification bodies have quickly aligned their standards with the new rules and started offering dedicated service. However, even NGOs and other entities that provide audits and services for certifications have expanded their work to accommodate EUDR compliance; the NGO Preferred by Nature for instance holds a significant, longstanding expertise on due diligence systems, and has recently launched its own certification with a strong EUDR focus.[24]

Focusing on compliance with the Regulation could be more or less rewarding for independent certification schemes, depending on the success of the EUDR itself, the possible replication of its approach in other international legislation, and a possible spillover of the legislation's approach also to other sectors, particularly minerals trade.

It is still largely unclear how effective the EUDR will be, and how strict national authorities will be in its application. While a more rigid approach will empower

24. See Preferred by Nature website: *EUDR alignment: Preferred by Nature certification*

Uncertainty over the EUDR

the role of certifications, a laxer implementation will likely reduce its importance. The EUDR predecessor, the EU Timber Regulation (EUTR) (European Parliament and Council of the EU 2010), although less complex in terms of scope (since it focused only on timber and on the legality of imports), witnessed a significant discrepancy between the ambitious objectives proposed by the piece of legislation, and its actual implementation – a difference that was clearly highlighted in the European Commission's 2021 EUTR Fitness Check (European Commission 2021).

Expansion of the EUDR

Other countries may also enact similar legislation, expanding the need for compliance services. Indeed, triggering anti-deforestation legislation in other countries, based on the model proposed by the EU, was to some extent one of the hopes of policymakers in proposing the EUDR in the first place. At the time it made sense: the US proposed the FOREST Act in 2021 (US Congress 2021), which followed very closely the EUDR approach – the only major difference being that it focused only on six commodities and excluded coffee, but it maintained a country risk evaluation and centred on tracing and geolocalisation. Although China has not yet proposed any similar legislation, in 2019 it revised its forestry law, adopting a EUTR-like approach concerning timber imports (China 2019), increasing hopes that Beijing would have further expanded the scope in the years to come. Currently however the situation has changed, and such hopes have significantly fallen: the US failed to approve the FOREST Act during the Biden presidency, despite relaunching it in 2023 (US Congress 2021), and it will be very unlikely to be approved during the second Trump administration, considering its strong anti-environmental stance. China also did not progress in the direction of developing its own EUDR, even finally joining the group of countries criticising the Regulation in mid 2024 (Dasgupta 2024).

Supporting smallholders

In addition to the EUDR support described in section 5.1, independent certification organisations can also contribute to reducing the impact of the Regulation on smallholders regarding ownership of the tracing data. In fact, the EUDR risks increasing the reliance of farmers on intermediaries or coffee buyers, since the latter are frequently responsible for collecting tracing data and GPS points for geolocalisation – and, in most cases, they thus become the owners of this data. As a consequence, a smallholder that may want to sell to the European market will be obliged either to continue relying on the buyer holding the information necessary for EUDR compliance, or find another willing to gather the data again, and carry such cost. This reduces the autonomy of farmers, binds them to intermediaries and potentially exposes them to cost fluctuations. Independent certification schemes can instead develop traceability systems whose ownership lies with the farmer, as some organisations and cooperatives in Mexico are already doing (Mexico Interviews 17-18).

The possibility of expanding the approach of the EUDR to other sectors is also relevant, although probably still distant. While the enlargement of the number of

Expansion of the EUDR to other sectors

commodities covered by the Regulation is unlikely, considering all the trouble the already wide scope of the document is causing, there are other sectors that may benefit from the implementation of tracing mechanisms. This is the case in particular for mining; the current global expansion of extraction activities because of the digital and energy transition, its increasing environmental impact, and the surge of illegal operations in regions such as Sub-Saharan Africa and Southeast Asia are all fuelling a strong debate about the need for mineral traceability and the implementation of due diligence systems (IEA 2025b). The development of these systems is particularly relevant for critical minerals, and it was indeed central to a report by the UN Panel on Critical Minerals in September 2024, which even asked for the development of a global traceability system (UN Secretary-General's Panel 2024). In this sense, certification schemes that specialise in EUDR compliance could extend their services also to the mining sector, and to others that require monitoring and auditing across the supply chain. While this is an interesting possibility, it is however still not clear how, where and when legislation like this could be enacted, and international coordination efforts in this sense are unlikely at least for the near future.

5.2 A NEW APPROACH TO CONSUMER PREFERENCES

Shifting consumer preferences

While consumer interest in some labels is decreasing (see section 4.2 A stable or decreasing consumer interest in certified coffee), it is increasing in others, particularly Organic. More generally, the attitude of the general public towards certification schemes is changing: consumers today tend to believe more than in the past that the coffee they are buying is sustainable and ethical, even without specific indications in this sense (Mexico Interview 18). Consumers are significantly more interested in excellent coffee, and indeed this is one of the fastest growing areas in the market: the EU specialty coffee market growth expectations are 13 per cent for the period 2022–2030 alone (Kalagate 2023), and similar values are expected for the US as well (Grand View Research 2025). Even in countries like China and India the sector is the most promising in terms of growth (despite the recent Chinese slowdown) (Charles 2025b), thanks to the diffusion of a coffee culture focused on widespread, often high-end coffee shops (such as those in Shanghai, which has one of the most vibrant coffee scenes in Asia) (Yang 2022). The market for specialty coffee has a significant potential that certification organisations could tap: in several cases, the variety of coffees and the methodologies employed by the producers supplying Fairtrade or Rainforest Alliance lead to better output, and this is also mostly the case for Organic.

Certifications have however, conversely, often been associated with a lower quality of coffee, particularly when comparing to equally priced alternatives (CBI

The need to boost quality

2021). In times of low coffee prices, this happens because farmers are not incentivised to supply higher quality products as certified coffee: producers would receive their minimum price (and the price premium) regardless of the bean grading. It would thus be more convenient for them to sell the lower grade bags as certified coffee, while selling the higher ones to commercial buyers willing to pay the full price. In other cases, the lower quality of certified coffee is a consequence of trouble in delivering a standardised production from a variety of different producers, and from the issues smallholders often face in producing quality coffee. Indeed, while their methodologies often involve a lower or no use of agrochemicals, agroforestry and other processes that generally increase the quality of the product, they often equally adopt substandard selection, picking or drying techniques, resulting in a lower quality output. Specialty coffee indeed remains easier to produce for larger, wealthier producers, than for smaller ones (Keen 2024). A greater focus towards quality could however be within reach by most labels, and could also exploit the expanding excellent coffee culture, a trend which goes beyond China and India, also involving producing countries like Mexico (Mexico Interview 18) and Vietnam (the latter already counting on a solid tradition).

5.3 EXPANDING THE ROLE OF CERTIFICATIONS IN SUPPORTING FARMERS

A quickly growing need for support

Supporting farmers is one of the strongest skills owned by certification organisations since, in several cases, this is their core activity and the purpose for which they were originally created. Producers will also increasingly need support in the years to come, particularly smallholders; not only will the EUDR require significantly more paperwork and documentation from some of them, but the climate crisis will also have a significant impact on production (see section 3.2 Climate change impact). Droughts and heavy rains such as those that affected Brazil and Vietnam in 2023 and 2024, as well as the aridification of humid regions, will significantly decrease yields and arable land (Bilen et al. 2022). This will disproportionately affect poorer farmers, who have less means for adaptation, and arabica plantations, which are more susceptible to climate variability. The impact of the climate crisis on coffee plantations could be also exacerbated by deforestation, since climate change will already reduce the ecosystem services offered by forests and other natural ecosystems (Bilen et al. 2022). Farmers will also need support on a number of other issues, considering the current and future variations in markets, prices and international competition (see section 4.3 Price fluctuations). More than 60 per cent of global coffee is produced in farms smaller than five hectares, which in several cases do not provide a full living income to farmers (Siles et al. 2022), while the recent climate shocks proved the vulnerability also of major producers (Poncet et al. 2024). Supporting smallholders is then crucial to guarantee a steady supply during challenging times, also to main-

tain the variety of production. The current troubles smallholders are facing indeed will not only reduce the quantity of coffee produced but could also significantly decrease or even reduce to almost nil the production in specific areas – in this sense, Mexico is one of the most exposed countries, with up to half the smallholders being potentially at risk of leaving the market in the next five to ten years (Mexico Interview 18).

Multifaceted role of certification schemes

Certification schemes can play a substantial role in this. Smallholders' yields are often much lower than their full potential, but support from external organisations can easily and rapidly boost production (Siles et al. 2022, Indonesia Interview 1, Mexico Interview 18). While this can be done by intermediaries and private companies as well, independent certifications can also guarantee that this expansion in production respects sustainability and ethical standards. By increasing income, infrastructures and living standards among producers, and by protecting natural ecosystems, water sources and biodiversity, they also guarantee that this increase in production is viable in the long term and resilient to the impact of the changing climate. This is a forward-looking outcome that, considering the uncertainty surrounding the market at the moment, could prove crucial for the coffee sector as a whole.

REFERENCES

INTERVIEWS

The following list shows the interviews cited in this report. This project also builds on the research work done for the report *Agriculture and Deforestation*, available at the following link https://www.iai.it/en/node/18381

General interview

Interview 1
Representative from Lavazza Company. Online, July 2025.
Lavazza is a major coffee company, based in Italy but trading globally.

Interview 2
Representative from the International Coffee Organisation (ICO). Online, June 2025.
ICO is among the most important organisations dealing with coffee trade globally, with the aim of coordinating production among countries and regulating prices.

Mexico

Interview 1
Coffee producer in the Veracruz region. Veracruz, February 2025.
Smallholder, farm between 1 and 2 hectares, producer of arabica.

Interview 2
Coffee producer in the Veracruz region. Veracruz, February 2025.
Smallholder, farm between 1 and 2 hectares, producer of arabica.

Interview 3
Coffee producer in the Veracruz region. Veracruz, February 2025.
Smallholder, farm between 2 and 3 hectares, producer of arabica.

Interview 4
Coffee producer in the Veracruz region. Veracruz, February 2025.
Smallholder, farm between 2 and 3 hectares, producer of arabica.

Interview 5
Coffee producer in the Veracruz region. Veracruz, February 2025.
Smallholder, farm between 1 and 2 hectares, producer of arabica.

Interview 6
Coffee producer in the Veracruz region. Veracruz, February 2025.
Smallholder, farm between 2 and 3 hectares, producer of robusta.

Interview 7
Coffee producer in the Veracruz region. Veracruz, February 2025.
Smallholder, farm between 2 and 3 hectares, producer of robusta.

Interview 8
Coffee producer in the Veracruz region. Veracruz, February 2025.
Smallholder, farm between 3 and 5 hectares, producer of arabica and robusta.

Interview 9
Coffee producer in the Chiapas region. Chiapas, February 2025.
Smallholder, farm between 1 and 2 hectares, producer of robusta.

Interview 10
Coffee producer in the Chiapas region. Chiapas, February 2025.
Smallholder, farm between 1 and 2 hectares, producer of robusta.

Interview 11
Coffee producer in the Chiapas region. Chiapas, February 2025.
Smallholder, farm between 1 and 2 hectares, producer of robusta.

Interview 12
Coffee producer in the Chiapas region. Chiapas, February 2025.
Smallholder, farm between 1 and 2 hectares, producer of robusta.

Interview 14
Coffee producer in the Chiapas region. Chiapas, February 2025.
Smallholder, farm between 2 and 3 hectares, producer of robusta and arabica.

Interview 15
Coffee producer in the Chiapas region. Chiapas, February 2025.
Medium sized farmer, farm circa 25 hectares, producer of robusta.

Interview 16
Buyer (acopiador) in the Chiapas region. Chiapas, February 2025.
Medium-sized buyer, working on arabica and robusta, both certified and non-certified.

Interview 17
Cooperative in the Chiapas region. Chiapas, February 2025.
Medium-sized cooperative, working on arabica and robusta, both certified and non-certified.

Interview 18
Vincent Lagacé, Co-CEO of Nuup. Mexico City, March 2025.
Nuup is a Mexico-based social enterprise, focusing on improving the sustainability of agricultural production, with a particular focus on coffee.

Interview 19
Representative from Exportadora de Café California. Mexico City, March 2025.
Exportadora de Café California is a major international exporter of coffee in Mexico.

Indonesia

Interview 1
Representatives from Hanns R. Neumann Stiftung (HRNS) in Sumatra. Sumatra, August 2023.
HRNS is a global NGO working on sustainable coffee farming, focusing on livelihood improvements, youth empowerment and environmental protection. It is currently leading a series of projects across Indonesia.

Interview 2
Representative from the Preferred by Nature office in Java. Java, August 2023.
Preferred by Nature is a global NGO working on traceability and sustainable agriculture. It is leading a series of projects in the field in Indonesia, also focusing on support for EUDR implementation.

Interview 3
Coffee producer in South Sumatra. South Sumatra, August 2023.
Smallholder, farm less than 1 hectare, producer of arabica.

Interview 4
Coffee producer in South Sumatra, South Sumatra, August 2023.
Smallholder, farm less than 1 hectare, producer of arabica.

Interview 5
Coffee producer in South Sumatra, South Sumatra, August 2023.
Smallholder, farm less than 1 hectare, producer of arabica and robusta.

Interview 6
Coffee producer in South Sumatra, South Sumatra, August 2023.
Smallholder, farm less than 1 hectare, producer of arabica and robusta.

Interview 7
Coffee producer in South Sumatra, South Sumatra, August 2023.
Smallholder, farm less than 1 hectare, producer of arabica and robusta.

Brazil

Interview 1
Coffee producer in the south of Minas Gerais state. Minas Gerais, October 2023.
A large producer, owning a farm between 500 and 700 hectares.

Interview 2
Coffee producer in the south of Minas Gerais state. Minas Gerais, October 2023.
A medium-sized producer, owning a farm between 40 and 60 hectares.

Interview 3
Coffee producer in the south of Minas Gerais state. Minas Gerais, October 2023.
A medium-size producer, owning a farm between 80 and 100 hectares.

Interview 4
Coffee producer in the south of Sao Paulo state. Sao Paulo state, October 2023.
A large producer, owning a farm between 600 and 800 hectares.

Interview 5
Representatives from Exportadora de Café Guaxupé. Minas Gerais, October 2023.
Exportadora de Café Guaxupé is one of the major buyers of coffee in the south of Minas Gerais, with a significant focus on sustainability and capacity building to allow farmers to access the market for certified coffee.

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