The *True* Cost of a Cup of Coffee:
Exploring the Business of Sustainable Coffee

MSUS 400 – Independent Studies in Sustainability:
The Business of Sustainable Coffee
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Introduction: The Quest for a True Cost

Every morning, I greet my local barista with idle talk over the daily brew, if fruity Ethiopia has been dialed or my preferred chocolate Columbia ready for my 6oz americano with a dash of milk. My order totals to a meager few dollars pre-tip and I wonder how my wallet is able to keep up to good coffee. Well, I am not too certain about the price I currently pay for my coffee. I am hesitant to say that I am actively supporting sustainable coffee practices with my daily cup(s) ordered while simultaneously overhearing baristas speak of the increasingly damaging environmental situation of coffee production, all the while fellow regulars line up behind speaking of the latest cafés opening meeting growing consumption demands. I simply cannot grasp the idea of $2.79 to be the true cost of coffee, even at a local third-wave café mindful of their suppliers' mission and quality. If I am to continue my daily routine in peace, I must know what exactly I am paying for (and not). This essay aims to discover the true cost of coffee, and where shortcuts in environmental, social, and economic factors have been taken for the maximization of profit and growth of today's US $465.9 billion global coffee industry ("Global Coffee Market," 2021).

By exploring the contemporary state of the global industry, I will discover the hidden costs that have cheapened coffee at the expense of environmental factors, now unifying as the main threats facing the industry today. Threats and opportunities will be analyzed alongside an investigation for triple-pillar sustainability in environmental, social, and economic factors. Understanding the play of technology, innovation, and globalization will be discussed in terms of key stakeholders and projects. Finally, a comparison between various business models in the coffee industry will be studied for the viability of sustainable coffee production in the future.

Essentially, this essay aims to answer a seemingly simple question:

What is the true cost of a cup of coffee when the price includes its environmental, social, and economic costs that have been historically treated as externalities of the coffee business?

The Contemporary Coffee Business: Understanding the Global Situation

Coffee is a social commodity connecting global actors and environments with over 125 million jobs. World coffee production for 2020-2021 is forecasted to be 175.5 million bags (60kg each), with Brazil, Vietnam, and Columbia as top producers ("Global Market Report: Coffee," 2019). The European Union is the greatest importer, making up 45% of the world's coffee bean imports to 49 million bags ("Production," 2020). While the United States falls second with 26 million bags, there are increasing consumption rates from producing countries and emerging economies beyond the historically elite, consumer countries (see Appendix A). Importantly, global supply-demand balance of coffee greatly varies yearly depending on successful or impaired harvests, climate change impacts, and unprecedented events such as COVID-19 that further increased fluctuations in coffee prices and added volatility in the market ("Sustainable," 2020).

Coffee is measured by the C price (traded in USD), with quality added as a premium on the C price (Brown, 2020). As a commodity based in the Intercontinental Exchange (ICE) in New York

City, its price is relative to trades and exchange rates. Therefore, the trade of coffee affects its supply and demand beyond the differing supply quantities due to environmental changes on the farms, further affecting smallholders needing to maintain their farms using their now-weak local currency for relatively more expensive inputs. While some supply volatility protection measures exist for coffee producers, they now occur within varying business models "following the dismantling of the [International Coffee Organization] quota system in 1989" (International Coffee Organization, 2020).

Interestingly, coffee farmers do not struggle with low-to-zero profits because of low harvests, but due to coffee's oversupply in the market (see Appendix B). Successful harvests worldwide decrease the C price (and farmers' profits) but increase profits for the traders in the market itself. Farmers must sell at the low price that is unrepresentative of their investment and cost of living because it is what the market calls the price of coffee on that day. Therefore, farmers end up receiving "4 cents" while there are billion-dollar businesses selling cups of coffee at US $2.50 – with additional space for a $0.25 barista tip (Boydell, 2020).

A major coffee crisis took place September 2001 where coffee prices reached a low of US $0.41 per pound – the lowest in real terms in 100 years and part of a four-year decline (Boydell, 2020). In perspective, C price averaged US $1.20 per pound in the 1980s, before the neoliberalization of coffee markets that separated the price of coffee from its real value. Currently, coffee prices remain below the ten-year average since 2010 (see Appendix C), in addition to weaker purchasing power, increasing agricultural diseases, and dilapidating climate changes. With prices continuing to fall, younger generations are seen abandoning their farms far before they can financially diversify into safer crops or even consider implementing premium sustainability measures in their trade (Schipani, 2019). The real issue is oversupply and unfair pricing reflecting the market price of the commodity far removed from the *real* price of coffee, its inputs, and its farmers' livelihoods.

Here is a critical question to contemplate: *With the historically exploitive structure of the coffee industry, has it always been destined to (d)evolve into our current state?* Through an anthropological lens, this is seen to be the case for industrial landscapes tethered to modernity's societal system as any valuable commodity growing into a sizable market will emerge as an economic opportunity (Vaccaro, 2010:26). With incentives for producers to produce as much as possible, destabilization occurs between supply, demand, and the commodity's value. It is the "fate of industrialization focused on single products across the globe" that pushes rural areas into "unilateral productive approaches." When the commodity's value decreases and negates profit margins due to "increasing extraction or labor costs," the "whole enterprise is terminated or moved to a place with lower productive costs" (Vaccaro, 2010:26). Essentially, the coffee industry can only move so far to mitigate climate changes until land shortage or environmental degradation stops this possibility. What had originated in Ethiopia and traded as a ceremonial and social drink throughout 17th-century Arabia, transformed into a lucrative international business prospect as coffee plantations sprawled colonial settlements (Pendergrast, 1999). Coffee became a standardized agricultural commodity "serving

the interests of markets dominated by first world corporations" and provided incentives for monoculture export approaches that made rural places "vulnerable to outsourcing, market shifts, [and] extractive collapse" (Vacarro, 2010:27). Perhaps, the business of coffee had always been destined to its degraded fate.

Triple-Pillar Sustainability: Analyzing Threats & Opportunities

Coffee is particularly vulnerable because it has an unusually shallow gene pool for a global commodity. There are only 2 species of coffee, arabica and robusta, grown for human consumption (Dewey, 2017) where *Coffea arabica* accounts for 70% of global production ("Global Coffee Conservation Strategy," n.d.). As 80% of coffee producers are smallholder farmers, coffee varieties have not undergone multiple costly breeding programs for expand genetic diversity and secure future coffee production ("Coffee," n.d.). Therefore, only a few varieties of arabica are adaptable to weather changes and could increase damage done by disease and pests: coffee leaf rust, or *la roya* in Spanish, cost 1.7 million jobs in El Salvador in 2011 alone (Dewey, 2017). But with the increasing demand for premium-priced specialty coffee, adapting business models and accessible technologies are advancing the future of sustainable coffee.

Climate change will increase temperatures, reduce water availability, change soil conditions, shorten harvest cycles, and encourage diseases and pests with higher humidity, unpredictable temperatures, and rainfall patterns (Pedrotti, 2020). It will reduce the "global area suitable for coffee by about 50% across emission scenarios" (Bunn et al., 2015:89). With greatest impact at low latitudes and altitudes, Brazil and Vietnam, the world's dominant producers, will experience substantial reductions in crop land availability. However, the International Coffee Organization (ICO) has a different outlook. Coffee production contributes positively to the growth of evergreen shrubs that sequester carbon and stabilize soils while preserving local biodiversity. ICO's main focus for sustainability is encouraging ethical standards for the producers and maintain quality of the produce. It encourages "improving cultivation, processing, storage, transportation and marketing practices" alongside regional support through coffee certification and verification programs ("Developing," n.d.). These activities positively contribute to the local rural communities through "building the capacity of institutions, improving access to credit and risk management mechanisms, reducing vulnerability to income volatility and promoting gender equality."

Similarly, globalization and trade liberalization have created opportunities for coffee producers to "cluster together and integrate into international supply chains" while accessing traditional and emerging coffee markets to increase their profit margins (International Coffee Organization, 2020:13). The expansion of the global coffee value chain (see Appendix D) has allowed multinational buyers to directly trade with coffee producers, magnifying the "private sector driven growth" of coffee while simultaneously supporting sustainable economic development with increased productivity, employment, and international trade (International Coffee Organization, 2020:14). To further improve value addition, there are three opportunities to upgrade the value chain: product, functional, and process upgrading (USAID, 2006). Whether through increasing

product quality for sustainably farmed coffee, improving functionality through processing green beans, or promoting process upgrading through increased harvest productivity, value chain upgrading unlocks added value, capabilities, and benefits from production for the producers themselves (Kaplinksy & Morris, 2000).

Technological adaptation strategies must also be considered with the increasing impact of climate change. Short-term adaptation strategies include "improved farming practices and post-harvesting methods" while long-term strategies include "capacity-building, improved monitoring of climate data, enhancing soil fertility, introducing or preserving different production models, and developing drought and disease-resistant varieties" including World Coffee Organization's (WCO) F1 hybrids. WCO's vision is to build a "toolbox of coffee varieties, genetic resources and accompanying technologies" to strategically alleviate supply chain constraints of growing coffee in our changing environmental future ("About," n.d.). F1 hybrid varieties have been bred for more resilient coffee plants to increase global productivity and quality gain. Varieties like *Centroamericano,* currently growing on global farms, have excelled in tests for environmental adaptability and bean quality through their "hybrid vigour" ("Next-Generation," n.d.). Most impressively, researchers in Yemen have identified promising coffee varieties with major resilience, adaptation, and cup quality. As the origin point of every worldwide cultivated variety, Yemen's expansive coffee land displays "high and low temperatures in the extreme range of coffee growing areas worldwide" with "one of the lowest global rainfall levels" (Montagnon et al., 2021). Perhaps, the new variety for global coffee production can be found, not bred, to survive within climate change. While technology and globalization have revealed great opportunities for sustainable agriculture, they still carry obstacles such as requiring new infrastructural developments or costing more than conventional coffee production, simply inaccessible to the majority of independent smallholder farmers worldwide.

Interestingly, there are discussions on the importance of increasing consumption in producing countries (Kanniah, 2020). By increasing internal consumption in producing countries like Brazil, Colombia, and Guatemala, local industries can be sustained through increased product demands, fewer producer obstacles, and greater income maximization. The problem of a low C price was historically oversupply exceeding demand in traditional markets and farmers not operating within labour-supporting business models with price protection over the volatility of the coffee market. Therefore, promoting local consumption could allow for price fixing with local suppliers, as opposed to dealing with international suppliers tied to changing exchange rates and other international commitments.

By fixing prices in the local currency and economy, local producers would be supported with a reduction in risk and be able to sell their produce for profitable margins ideally to re-invest in their own production or long-term sustainable and viable strategies. Additionally, producers would be restricted to local competitors and with local relationships, ensuring business contracts and producing the necessary amount of coffee to match supply to the determined demand. Case studies include Brazil's successful effort of introducing programs like Coffee Quality Program that

promoted quality coffee (not excess coffee unfit for export) in the local market to street consumer preferences towards higher-quality options (Kanniah, 2020). Ultimately, some producers are being advised to diversify or shift away from coffee production due to its abysmal industry prospects. But there must be a sustainable model fit for those staying in the business to survive in the future.

The Future of Coffee: Comparing Sustainable Business Models

1. *Voluntary Sustainability Standards (VSS)*

VSS is a market-based instrument regulated by information and voluntary governance to create market incentives for sustainable production (De Córdoba, 2018). 30 years ago, VSSs entered the market where organizations and corporate stakeholders sought to distinguish sustainable coffee products from conventional coffee as ethical demands were pushed by the end consumers and their preferences for sustainable products. In 2016, VSS-compliant coffee supplied at least 34% of total coffee production and increasingly adopted by coffee producers each year (see Appendix E). While the global retail value of coffee is predicted to grow 5.5% compound annual growth rate between 2018-2023, the price must be evaluated against the history of volatile C price and current long-term price decline. Farmers have always struggled with the low selling costs barely covering their production costs, preventing strategic or sustainable long-term decisions.

VSS-compliant coffee is mainly concentrated in mature markets like the European Union and the United States. However, it still does meet the conventional coffee supply. This supply-demand imbalance between conventional supply and VSS demand can limit the latter's market growth; therefore, a potential move towards promoting such sustainable coffee in non-traditional markets (Asia and Oceania) would be beneficial for sustainable coffee as a whole. VSS-compliant coffee requires resources and investments to market while coordinating value chain nodes to ensure successful sustainability measures beyond just profit. It could be done through simulating greater demand through brand awareness which would allow for greater revenues, improving farm profitability and strengthening the practice of sustainable coffee production for the uncertain future.

2. Eco-labeling

Globally, 8 out of 10 consumers surveyed say they value sustainability, where over 70% of these consumers would pay 35% more for eco-friendly brands (Bekmagambetova, 2020). There are a plethora of eco-labels and sustainable certifications that companies alter their operations to qualify for, all in response to consumer preferences and pressure. Fair Trade is a well-known certification expanding beyond coffee produce, but its "strict certification requirements are resulting in uneven economic advantages for coffee growers and lower quality coffee for consumers" (Haight, 2011). The model supports producers with an above-market price if they meet ethical, environmental, and production standards. The aim was to reduce poverty; however, its flaws prevent the certification from expanding into its market potential and missing its point of impact to its farmers.

Some main points of critique are the undifferentiated economic situation of the farmers who benefit from the price stability of coffee contracts certified Fair Trade; however, these margins offset the

price of the Fair Trade certification itself. Over 13 years of cooperative in Guatemala, no long-term benefit for the farmers could be found (Haight, 2011). Additionally, these price-setting advantages of being Fair Trade certified allow for any bean quality to be sold at that price. C price is a standard price for coffee beans, no matter the quality. Therefore, the premium price of Fair Trade coffee that "supports" the cooperatives' farmers is paid on behalf of lower quality beans, further damaging the reputation of the certification label.

3. Coffee Agroforestry Business-Driven Clusters (CaFC)

CaFC is an "organizational model that fosters social and environmental innovation through farm renovation" by uniting "agronomy experts, roasters, producers, and NGOs to maximise the long-term profit potential for smallholder farmers" (Harper, 2021). With 125 million people worldwide reliant on coffee for their livelihoods, around 80% of them are smallholder coffee farmers ("Coffee," n.d.). As a boom-and-bust commodity, coffee is quite a volatile produce for smallholders who reduce their limited land for staple food crops. To grow coffee, never mind sustainably, these farmers would need a sufficient dependable income to live beyond their coffee.

For example, Nicaraguan credit institutions deal exclusively with smallholders, yet charge 25-30% interest annually ("Coffee," n.d.). The season's profit goes to loan payment, further discouraging the farmer from adopting sustainable practices or even long-term strategic planning for their livelihood. CIRAD, a French agricultural research centre in Nicaragua, follows the CaFC model (Harper, 2021). Essentially, smallholder farmers receive loans to replant coffee trees which they repay with the first three full harvest. During those years, the farmers are paid a modest but dependable salary to meet the supply commitments from designated roasters who buy the coffee at above-market prices. The roasters receive quality coffee with a strong social and environmental sourcing, while including agronomy experts who support the farmers with agroforestry techniques to boost their income while working with the environmental changes in their local ecosystem. The CaFC model enables farmers to maintain their involvement in the global coffee value chain through the strengthening of public extension services and buyer-driven extension programs (International Coffee Organization, 2020:20).

4. *Multinational Corporations & Non-Governmental Organizations Partnership (MNC-NGO)*

MNC-NGO partnerships leverage the global supply chains of multinational companies (MNCs) with the social campaigns of non-governmental organizations (NGOs). An example is the Starbucks and Conservation International (CI) alliance. This model pursues an "active assistance approach" where essentially "partnerships provide support during the adoption of new sustainability practices while simultaneously improving the ability of [smallholder] producers to participate in global supply chains" (Perez-Aleman & Sandilands, 2008). Starbuck's large buying power encourages smallholders to provide sustainable coffee production while ensuring conservation practices for the continued partnership and financial support. The partnership certified operations, while standardizing environmental upgrading, alleviating producer poverty, and stabilize demand fluctuations within the coffee industry. MNC-NGO is a new model adapted

to the way the world works now: proactive activism for sustainable coffee through corporate involvement. "Public-private partnerships are conducive to [global value chain] integration" through complementary strengths between public agency regulation and private sector action (International Coffee Organization, 2020:21).

5. *Direct Trade (Cooperative or Individual)*

Transparency is guaranteed when directly dealing with the farmers who collect the true price of their produce, without losing it in intermediaries or fluctuating pricing on an international floor. Direct trade allows a trusting relationship between the producer and supplier where a higher-quality product is available for a higher (true) cost of coffee (Charles, 2021). This model is increasing in popularity with the greater demand for sustainable and ethical roots, alongside other voluntary sustainability standards (VSSs). Recognizing the value of coffee is what consumers truly want when they ask for a sustainable cup of coffee. This is possible when dealing directly with those who live off coffee production and its business, to use the profitable margins in supporting their livelihoods and further re-investment in their business.

For smallholder farmers to be financially secure, they would need to rely on available buyers of their products, access to specialty coffee markets, or protection under certification schemes. However, these are not always available and can really discourage a coffee producer from replanting when in the midst of a volatile international coffee pricing and environmental barriers to producing more valuable coffee crops. If individual direct trades are not possible, cooperatives can be of tremendous support. The "formation of farmer groups and cooperatives" can facilitate "marginalized smallholder farmers' participation in the [global value chain] by reducing costs of entry to high-value markets for groups of farmers" (International Coffee Organization, 2020:20). Cooperatives would expand their bargaining power, opportunities for value chain upgrading, and access to international markets through direct trade (USAID, 2006).

Conclusion: $_ _._ _ is the true cost of a cup of coffee

Well, it is more complicated than it seems. No true cost exists – it is hard enough to set a single C price. However, the hidden costs along the production of a cup of coffee can be revealed through critical reflection of the business of coffee, its sustainability dilemmas, and what consumers can do to support sustainable coffee for the future. The question can only be answered through individual reflection by calculating every step previously hidden in the price of a cup of coffee. As a whole, global coffee consumption is increasing while coffee farmers are still facing the same issues made worse by climate change. However, the power of consumers is not in purchasing cheap coffee or limiting their consumption, but by supporting specialty coffee built by sustainable business models.

Simply put, each cup of coffee asks for a farmer's work. The true cost of the coffee is the price that supports an ethical business model and secures the future of the sustainable coffee for many generations of coffee farmers and coffee lovers to come.

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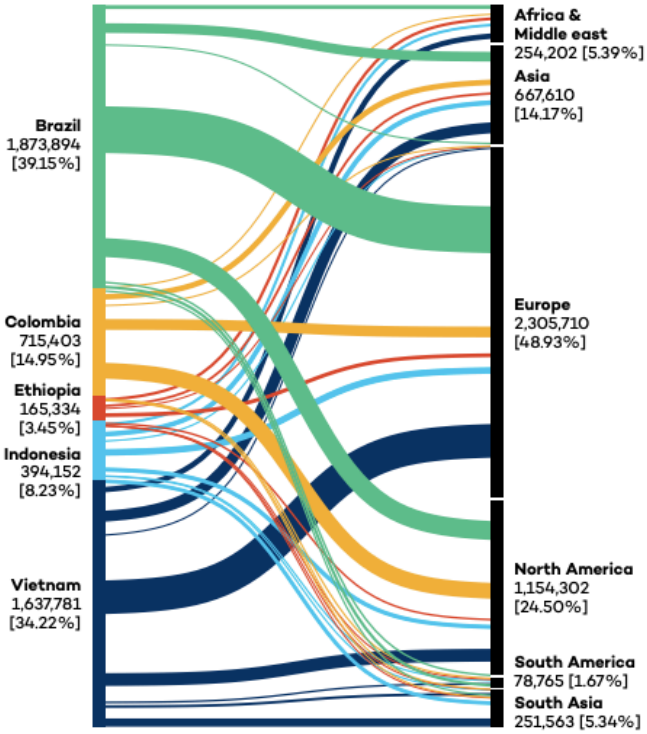
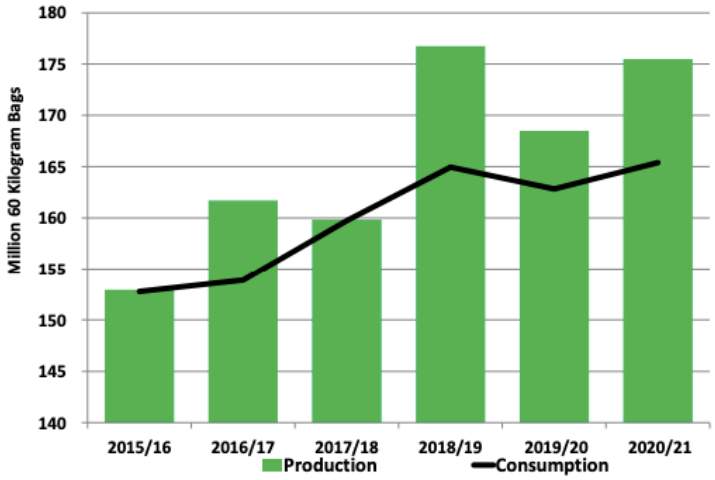
Appendices

Appendix A – Trade Flows of Largest Producer Countries (metric tonnes, 2016)



Source: Series, Sustainable Commodities Marketplace. "Global Market Report: Coffee." *International Institute for Sustainable Development (IISD)*. https://www. iisd. org/sites/default/files/publications/ssi-global-market-report-coffee. pdf (2019).

Appendix B – World Production and Consumption Rebound (2015-2021)

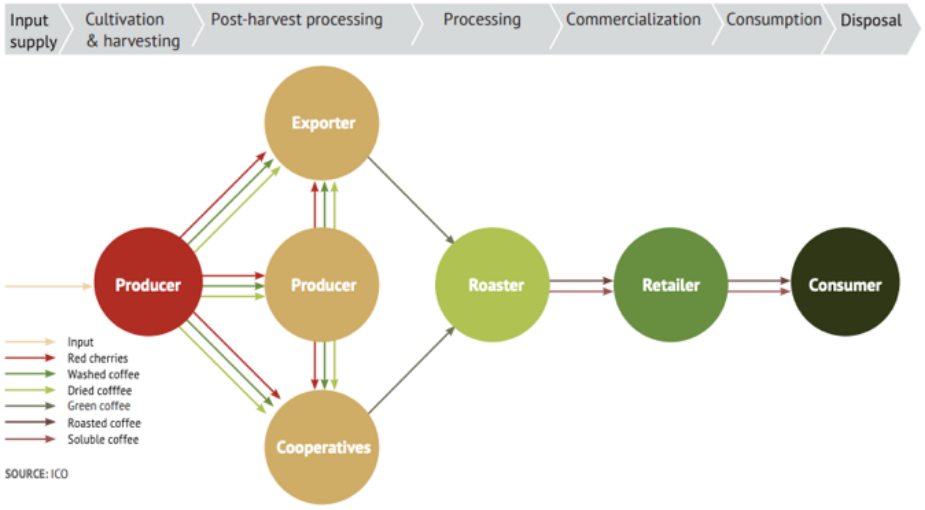


Source: "Production, Supply, and Distribution." *Foreign Agricultural Service*, United States Department of Agriculture, 2020, apps.fas.usda.gov/psdonline/app/index.html#/app/advQuery.

Appendix C – Coffee Prices Below the 10-Year Average (2010-2020)

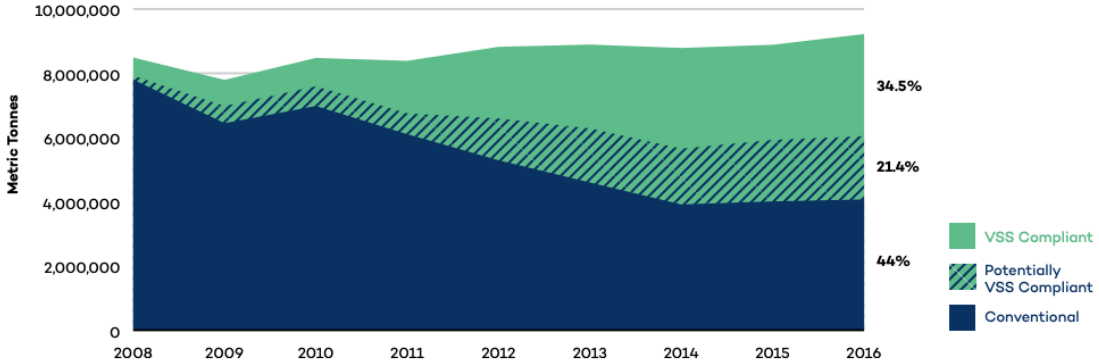
Source: International Coffee Organization, 2020. Coffee Development Report (2020). The Value of Coffee - Sustainability, Inclusiveness and Resilience of the Coffee Global Value Chain, https://5aa6088a-da13-41c1-b8ad-b2244f737dfa.filesusr.com/ugd/38d76b_4fc7b54a15f14a548b2f4a208c2eae6d.pdf

Appendix D – The Global Coffee Value Chain



Source: International Coffee Organization, 2020. Coffee Development Report (2020). The Value of Coffee - Sustainability, Inclusiveness and Resilience of the Coffee Global Value Chain, https://5aa6088a-da13-41c1-b8ad-b2244f737dfa.filesusr.com/ugd/38d76b_4fc7b54a15f14a548b2f4a208c2eae6d.pdf

Appendix E – VSS-Compliant vs. Conventional Global Coffee Production Trend (2008-2016)



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