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Exploring Sustainable Futures in Coffee Systems

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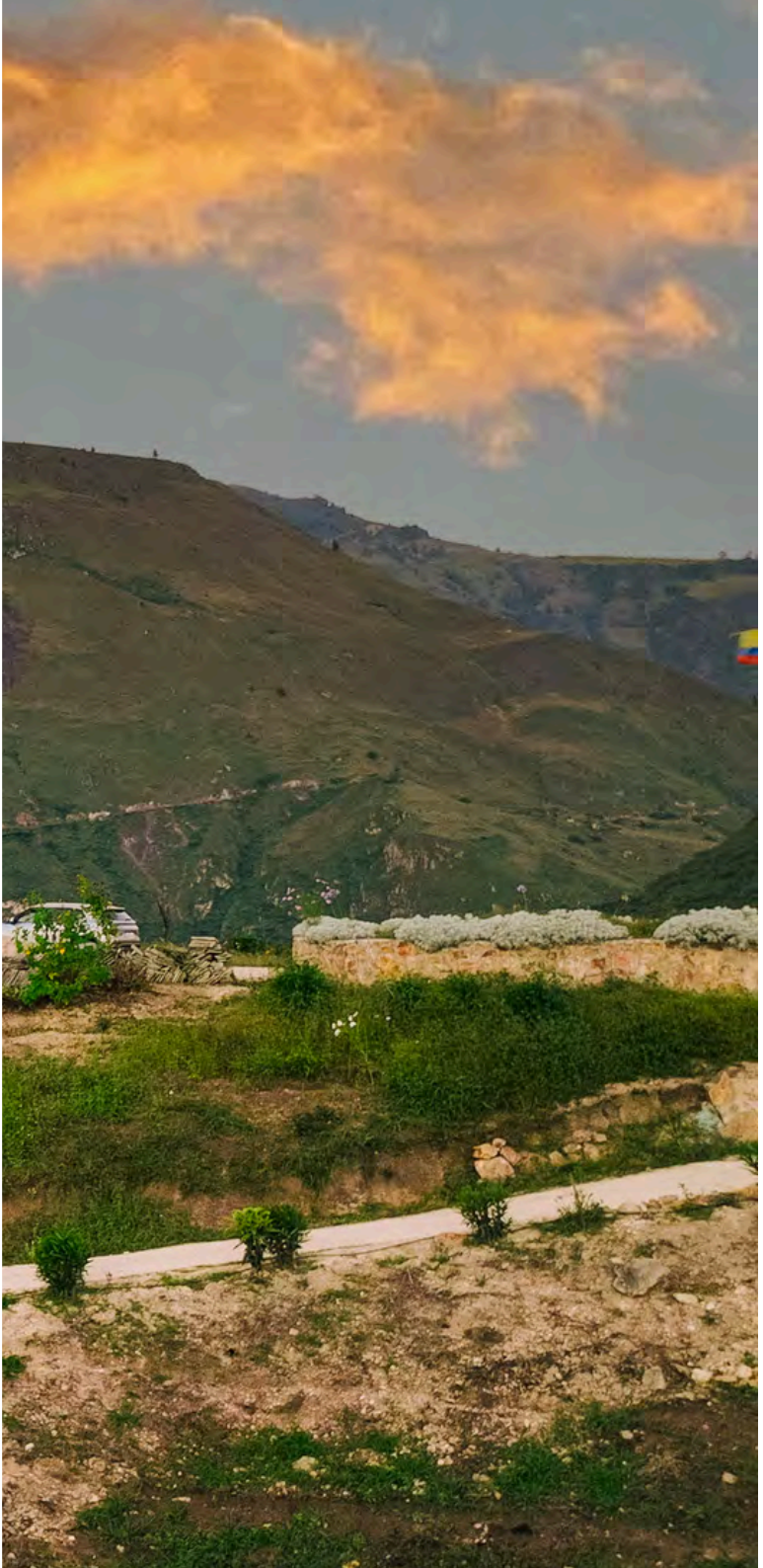

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Glossary

Agroforestry

A land management approach that combines coffee cultivation with trees and other vegetation. It can support biodiversity, soil health, shade, and long-term farm resilience.

Arabica

Coffea arabica, the most widely traded coffee species in specialty markets, often valued for higher cup quality and complexity.

Cascara

The dried outer skin of the coffee cherry, which can be used for beverages or other products.

Circular Economy

An approach that seeks to reduce waste and create additional value by reusing materials, by-products, and resources already present in a system.

Commodity Coffee

Coffee traded primarily as a bulk product with limited differentiation, often priced in relation to the global C-market.

C-Market

The global futures market reference price for Arabica coffee, traded in New York.

Differential

An additional amount paid above or below the C-market price, often based on quality, origin, certifications, or relationship factors.

Diversification

Developing multiple income streams, products, or market pathways to reduce dependence on a single source of revenue.

Drying

The stage after processing where coffee beans are dried to stable moisture levels before storage or milling.

End Market

The final stages of the value chain where coffee is sold or consumed, including roasters, cafés, retailers, and consumers.

Fermentation

A stage in coffee processing where natural sugars and microorganisms interact, influencing flavour development.

Green Coffee

Unroasted coffee beans prepared for export and international trade.

Origin

The place where coffee is grown and produced. It may refer to a country, region, or specific community such as La Papaya.

Milling

The stage where dried coffee is prepared for export. This may include removing the parchment layer, polishing, and separating beans by size, weight, or quality.

Premium

An added price paid for quality, differentiation, relationship value, or certifications.

Processing

The steps used to remove fruit from the coffee cherry and prepare beans after harvest, such as washed, natural, or honey processing.

Producer

A coffee farmer or farming household involved in cultivation, harvesting, and post-harvest processing.

Robusta

A coffee species generally stronger in body, and often used in blends, soluble coffee, and recently increasingly in specialty contexts.

Specialty Coffee

Coffee that is differentiated by quality, traceability, origin, and often stronger attention to production practices and sensory experience.

Third Wave Coffee

A movement in coffee culture that emphasizes high-quality sourcing, traceability, roasting craft, brewing precision and producer recognition.

Traceability

The steps used to remove fruit from the coffee cherry and prepare beans after harvest, such as washed, natural, or honey processing.

Abstract

Coffee is one of the most widely traded agricultural commodities in the world, yet its production remains highly vulnerable to climate change, price volatility, and structural inequalities across the supply chain. Smallholder producers, who account for the majority of the global coffee production, operate within systems where risk is concentrated at origin while value is captured downstream. Despite the growing prominence of sustainability initiatives within the coffee industry, many of these vulnerabilities still persist.

This research explores coffee sustainability as a system-level challenge, examining how risk, value and coordination are distributed across the coffee value chain. Grounded in collaboration with the coffee farming community of La Papaya in Loja, Ecuador, this research adopts a participatory and systems-informed approach. Methods include ethnographic fieldwork, semi-structured interviews, signal scanning, systems thinking, strategic foresight, and design methodologies.

Findings reveal a misalignment between value creation and value capture, alongside gaps in coordination and communication across actors. While sustainability initiatives and specialty market differentiation introduce new forms of value, they often operate within structures that limit long-term implementation.

The research identifies leverage points focused on strengthening relationships, improving feedback loops, enhancing value recognition at origin and exploring connections to end markets to reduce exposure to risks. By framing sustainability as a relational systemic condition, this study contributed to more coordinated and context-driven approaches within the specialty coffee sector.

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1. INTRODUCTION

Introduction

Coffee is one of the most widely traded agricultural commodities in the world, and one of the most consumed beverages globally. Coffee supports the livelihoods of millions of people across regions and plays a significant role in the economies of producing countries. Currently, coffee production is largely dependent on smallholder coffee farmers, whose production systems operate within highly localized ecological, social and economic conditions.

This research explores sustainability in coffee production through a systems-level perspective, examining how risks, incentives and value distribution shape the long-term viability of coffee farming communities. In collaboration with a specialty coffee community in the south of Ecuador, this study focuses on placing producer realities at the centre of the analysis and aims to explore how sustainability challenges emerge within the broader coffee system and what strategic directions may support more resilient production models.

Smallholder producers are typically defined as farmers managing land less than two hectares, they account for approximately 80% of coffee farms and produce around 60% of the world's coffee supply (Ruben, 2023). Coffee production for these farmers rarely exists as a single economic activity. Instead, it is embedded within broader systems that may include subsistence agriculture, livestock, wage labour, and off-farm income. These diversified conditions reflect the need for farmers to constantly manage climate and price uncertainty along with long production cycles.

At the same time, the global coffee sector has been transforming. The expansion of specialty coffee and growing consumer interest in transparency and quality have reshaped how coffee is produced, marketed, and consumed. These shifts have created new forms of value within the coffee economy while also introducing new expectations.

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Despite these changes, the coffee system continues to face pressures that affect the viability of farming systems. These pressures operate across the supply chain and influence decisions in farm management, investment and long-term participation in coffee production. This is why this research approaches coffee sustainability as a systems challenge, examining how structural dynamics shape producer livelihoods and resilience. Through participatory engagement with coffee producers and professionals, this study seeks to generate insights and strategic directions grounded in local experience while also contributing to broader discussions about sustainability within the global specialty coffee system.

The Coffee Crisis

The term coffee crisis has been used at different historical moments to describe periods when global prices collapse, producer incomes fall below the cost of production, harvests are disrupted by climate events, disease outbreaks devastate crops, and supply instability intensifies. One of the most severe crises occurred between 1999 and 2004 following the dismantling of the International Coffee Agreement, which had previously been designed to stabilize the market through export quotas. As Osorio (2004) explains, a short period of moderately high prices in the mid-1990s, partly driven by climatic supply scarcity, encouraged a surge in global production. However, when new production entered the market, global supply grew faster than demand. The resulting structural oversupply led to one of the worst income crises experienced by coffee growers.

What made this crisis particularly severe was not only the drop in prices, but also the limited alternatives available to producing regions. Coffee cultivation is geographically and biologically anchored. The perennial nature of the coffee tree requires two to four years between planting and initial harvest, locking producers into long-term exposure. Environmental conditions, weak infrastructure, and limited market access further restrict rapid transitions to alternative crops or livelihoods. As Osorio notes, structural constraints in many coffee-growing areas make economic diversification difficult. Producers are embedded in systems that do not easily absorb shocks.

Two decades later, many of these vulnerabilities remain, and in some cases have intensified. Today, the term coffee crisis is again increasingly relevant. Climate change projections suggest that by 2050, the land most suitable for Coffee arabica, which accounts for approximately of 60% to 70% of total global production, could decline by approximately 50% due to rising temperatures and shifting rainfall patterns (Gibbens, 2022). Major producing regions are already facing increasing pest pressure and unpredictable weather cycles. The 2012–2014 coffee leaf rust outbreak in Central America further revealed how quickly biological shocks can destabilize entire regions.

At the same time, demographic and social pressures signal growing fragility, as explained by Freund (2018). Smallholder coffee populations are aging, and younger generations are often reluctant to continue farming in the face of low and volatile incomes. Migration from coffee-producing regions persists, and in some areas, farm abandonment has increased. These patterns underscore a deeper urgency that the sustainability of coffee not only depends on environmental adaptation, but also on the long-term viability of rural succession.

In response to recurring instability, sustainability has become the dominant discourse within the coffee industry. Certification schemes, ethical sourcing initiatives, price premiums, direct trade models, regenerative agriculture standards, and corporate responsibility programs have expanded rapidly. During moments of crisis, these approaches are positioned as corrective mechanisms capable of restoring balance to the system.

For example, certification remains one of the most visible tools for communicating sustainability. Organizations continue to update standards and introduce new labels, including regenerative agriculture certifications aimed at addressing climate resilience (Brown, 2025). Certifications can signal environmental and social responsibility, and research suggests that consumers are often willing to pay premiums for labelled products. However, participation frequently entails significant financial and administrative burdens for producers. As Devoney (2025) notes, certification processes can require extensive documentation, audits, and transition costs that are not always offset by price premiums. In markets crowded with sustainability labels, there is a risk that the benefits of those labels become less clear or harder to capture, while the costs of meeting requirements often remain with producers. This highlights a broader challenge: many solutions are shaped around what markets want to see, while much of the responsibility and burden still falls on farmers at origin.

Despite the growth of sustainability programs, core vulnerabilities persist. Price volatility continues. Climate risk intensifies. Disease cycles recur. Producers remain bound by long biological investment horizons and limited geographic mobility. While sustainability initiatives address important dimensions of environmental stewardship and ethical sourcing, they often operate within the same structural conditions that generate instability. This tension raises an urgent question: if sustainability has become central to the coffee industry's discourse, why do systemic vulnerabilities remain embedded in producing regions?

Much of the dominant sustainability narrative focuses on improved farming practices, certification compliance, or price premiums. While these areas remain important, recurring crises raise broader questions about whether farm-level interventions alone are enough to address instability. They also point to possible gaps in how risk, coordination, and value are structured across the global coffee system, suggesting that some of the deeper challenges may lie beyond production.

This research begins from that point of tension. Rather than treating sustainability solely as a technical or market-access challenge, it asks whether coffee sustainability must be understood as a system design challenge, one that examines how structural risk is distributed, how information flows across actors, and how value created at origin is recognized and secured. By situating producer realities within this broader system lens, the study seeks to move beyond crisis understanding toward structural alignment.

Specialty Coffee & Changing Consumer Values

The term specialty coffee was first introduced in 1974 in an issue of Tea & Coffee Journal by Erna Knutsen, marking an early attempt to distinguish high-quality coffees from the broader commodity market (Patel, 2024). Since then, the concept has expanded into a distinct sector within the global coffee industry. The definition of specialty coffee has evolved alongside changing consumer values, market expectations, and new ideas about what coffee should represent.

Over the years, coffee consumption has moved through different historical waves. Garcia et al. (2024) describe the first wave of coffee as a period of mass commercialization beginning in the 1960s. During this wave, coffee became widely accessible, particularly through instant coffee and large-scale coffee blends. In the United States, brands such as Folgers and Maxwell House became staples in households across the country. During this phase, coffee was primarily treated as a standardized commodity: affordable, convenient and widely distributed.

The second wave introduced a shift toward improved quality and origin awareness. Companies such as Starbucks popularized espresso-based drinks and emphasized sourcing narratives, making this type of coffee more accessible to a broader consumer market. As Garcia et al. (2024) note, coffee began to transition from a daily necessity to a lifestyle-oriented product, acquiring new forms of differentiation in the market.

The third wave further intensified this transformation. Third wave coffee refers to the current movement in coffee characterized by careful consideration of coffee's complexity and an aspiration to experience it at higher levels of quality. According to Garcia et al. (2024), differentiation in this wave extends beyond quality to include specialty microlots, varieties, origin transparency, harvesting methods and attention to environmental and social concerns.

Coffee in this wave becomes a curated experience grounded in traceability and storytelling.

It is within this broader third-wave movement that specialty coffee became more institutionalized. Much of this formalization can be attributed to the Specialty Coffee Association (SCA), which introduced a standardized quality evaluation system in 2004. Under this system, any coffee scoring 80 points or above on a 100-point scale is classified as specialty coffee. This assessment process includes a physical inspection of green coffee, such as defect count, bean size, and moisture content, as well as sensory evaluation of aroma, flavour, acidity, body, and aftertaste. Extrinsic attributes, including variety and processing method, are also considered. Within this framework, specialty coffee is further differentiated by score ranges: coffees scoring 80–84.99 are categorized as Very Good, 85–89.99 as Excellent, and 90–100 as Outstanding (Patel, 2024). While this point-based system has played a central role in shaping market recognition and pricing, it has also been critiqued for narrowing the definition of value to a physical and sensory performance alone.

As consumer values continued to evolve, so did the meaning of specialty coffee. In response, the SCA has revised its definition of specialty coffee to move beyond numerical scoring. The current definition describes specialty coffee as "a coffee or coffee experience that is recognized for its distinctive attributes, resulting in a significantly higher value within the marketplace" (SCA, n.d.). This shift reflects an effort to adopt a more holistic understanding of value, one that incorporates not only cup quality but also transparency, traceability, sustainability, and the broader social and environmental context of production.

As specialty coffee has evolved, it has increasingly come to represent both a market category and a shared set of values. Grant (2021) describes this transition as the emergence of a "specialty coffee community," in which quality is intertwined with ethical commitments, producer recognition, and long-term livelihood stability. Closely associated with this evolution is the rise of third-wave coffee, which explicitly challenges the commodification of coffee by emphasizing origin specificity, price premiums for quality, and closer relationships between producers and buyers. Rather than treating coffee as an interchangeable good, this approach foregrounds the labour, knowledge, and ecological conditions embedded in each cup.

This value shift is also reflected in the growing emphasis on traceability and transparency across the supply chain. As noted in the SCA's 2021 white paper "Towards a Definition of Specialty Coffee: Building an Understanding Based on Attributes", traceability allows coffee to be evaluated for more than just how it tastes. When a coffee can be traced back to its origin, variety, and processing method, buyers and consumers are also able to consider the story, work, and conditions behind it. This creates added attributes that allow for further market differentiation.

Additionally, recent data suggest that these values are reshaping demand. Daily Coffee News (2025) reports that approximately 46% of American adults now drink specialty coffee daily, making an 84% increase in specialty coffee consumption since 2011. Similarly, the Specialty Coffee Association (2024) finds that younger consumers (ages 25-39) are driving much of this growth. This demonstrates a significant expansion of high-quality and differentiated coffee markets.

Certification Limitations

Alongside the growth of specialty coffee, sustainability has increasingly been positioned as a central marketing and value proposition. As Charles (2024) observes, companies now use sustainability identifiers such as B-Corp certifications, organic labels, and Fair Trade claims to distinguish themselves in the current marketplace. The rise of conscious consumerism has

made sustainability a strategic priority, as many buyers seek to align purchases with personal values. However, this dynamic has also created space for greenwashing, where sustainability language from corporations and businesses may exceed substantive practice.

Sevy (2023) argues that genuine sustainability requires moving beyond certification as a branding mechanism toward direct accountability among supply chain actors. In this framing, sustainability is not a static label, but an ongoing responsibility embedded in relationships. This distinction is important when assessing whether sustainability initiatives truly align with producer priorities or continue to reinforce top-down, market-driven solutions.

Research suggests that consumer perceptions of sustainability do not always align with producer experiences. Carpio and Zamora (2023) report a significant disconnect: while approximately 78% of U.S. consumers believe the sustainability movement has benefited farmers, only 31% of Honduran coffee producers agree. Consumers tend to prioritize environmental and social dimensions, whereas farmers often emphasize economic concerns such as fair pricing and stronger purchasing relationships. This highlights a gap between downstream expectations and upstream realities.

Efforts such as the Narrative Label developed by the Slow Food Foundation (2020) attempt to bridge this divide by centering producers' voices. Unlike conventional certification schemes, the Narrative Label makes it possible to communicate detailed information on cultivation practices, cultural heritage, and processing methods directly to consumers. Such initiatives reflect growing recognition that traceability and storytelling can help return visibility and recognition to producers.

Overall, changing global demand has helped reshape coffee into a differentiated, narrative-driven product. Specialty coffee has grown alongside these shifts in values, evolving from a focus on cup quality alone toward a broader conversation about transparency, sustainability, and connection. However, while consumers may be willing to pay for quality and ethics, the translation of these values into structural change within the supply chain remains uneven.

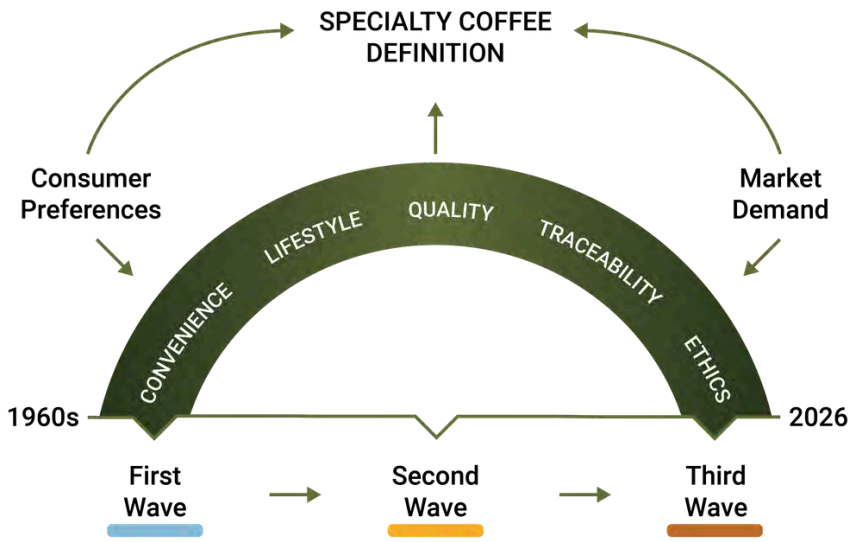


Figure 1: Changing definitions of specialty coffee across market waves

Supply Chain

To understand the sustainability debate in coffee, it is necessary to first situate how the coffee system operates structurally. Coffee moves through a global supply chain composed of multiple actors, financial mechanisms, and regulatory processes. Each stage contributes to transforming, transporting, financing, and marketing the product. To better understand this environment, the coffee system can be understood through three interconnected dimensions: agronomic, commercial, and institutional.

Agronomic Dimension

At its foundation, coffee is an agricultural product shaped by ecological time. Coffee trees require approximately two to four years before producing their first harvest. Once mature, they yield cherries annually, though productivity depends on climatic stability, altitude, soil conditions, and disease management.

After harvest, cherries must be processed to reveal the green beans inside. As Turp (2016) explains, cherries are either selectively hand-harvested or strip-picked, where all cherries are removed at once. Once picked, they must be processed promptly to prevent spoilage. Processing methods vary, but the two dominant approaches are natural and washed. Natural processing involves drying whole cherries with the fruit intact before removing outer layers. Washed processing involves depulping the cherries shortly after harvest, removing the mucilage, and then washing and drying the beans before final milling, where the protective parchment layer is removed.

After processing, the beans are cleaned, sorted, and graded based on factors such as size, weight, moisture level, and physical quality before export. At this stage, they become green coffee, the main form traded in international markets. Value differences are already established here, as green coffee is priced and evaluated according to origin, processing method, and quality characteristics.

Figure 2: Main production stages from coffee cherries to exportable green coffee.

Commercial Dimesion

The physical movement of coffee follows a recognizable sequence. Producers cultivate and harvest coffee. Exporters aggregate coffee and prepare shipments. Importers manage international logistics and distribution. Roasters transform green coffee into roasted products. Retailers and cafés deliver the final beverage to consumers, as explained by Neamț (2024). This sequence captures the visible trajectory of the commodity.

In many cases, exporters purchase directly from farmers or cooperatives. In others, roasters or importers establish contracts with producers to secure traceability and quality. Once purchased, coffee must be transported to consuming markets. Yoong (2024) notes that green coffee must arrive in good condition and with sufficient lead time for roasting and packaging. Sea freight is typically preferred due to cost efficiency and volume capacity, although it often requires full container commitments. Air freight allows smaller volumes and faster delivery but carries significantly higher costs and greater environmental impact per unit transported (Ngow, 2025).

After importation, roasters purchase green coffee. Large multinational roasters prioritize volume, cost efficiency, and consistency, frequently blending coffees from multiple origins. Smaller specialty roasters emphasize traceability and distinctive flavour profiles. Through roasting, packaging, and branding, green coffee is transformed into a consumer-ready product distributed through retail channels or served in cafés.

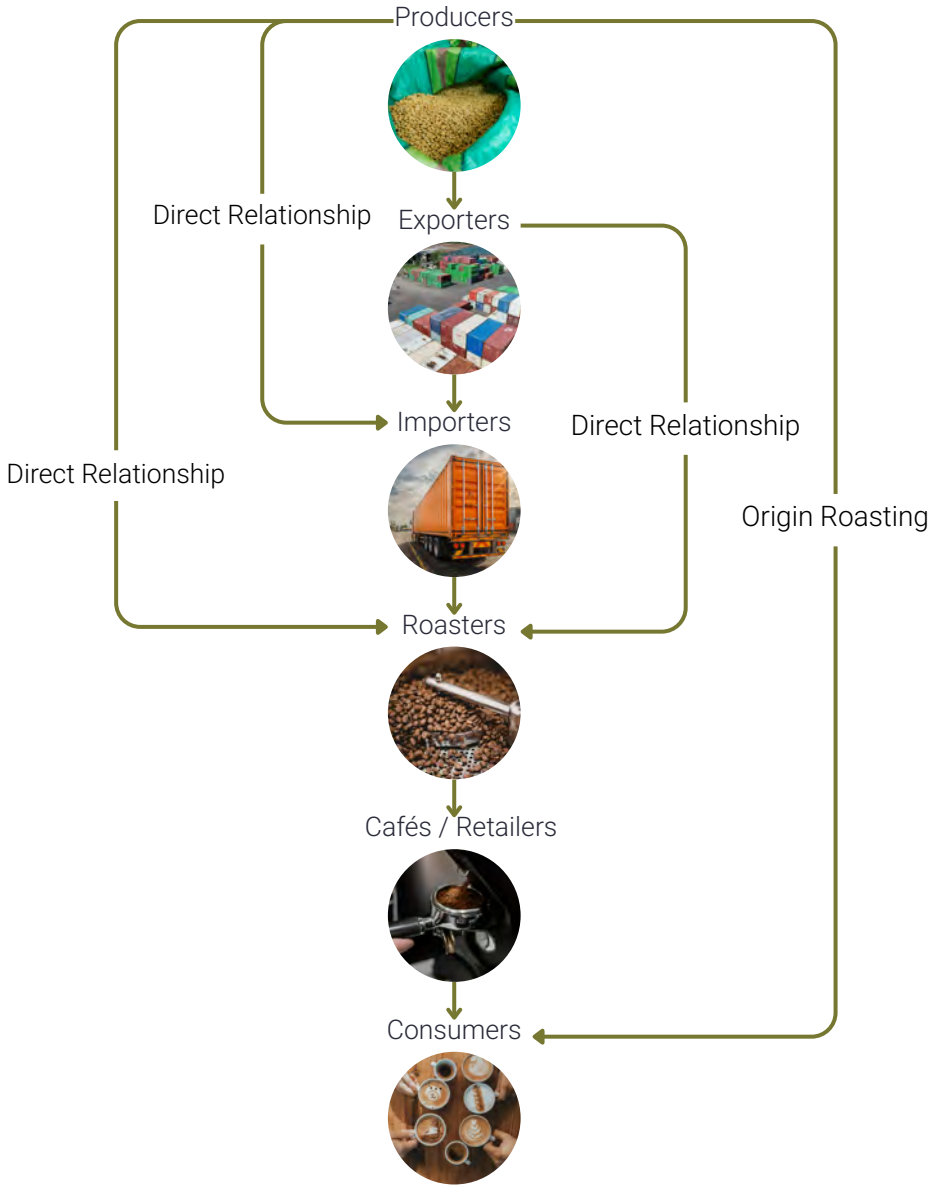


Figure 3: Main pathways through which coffee moves from origin to consumer, including traditional intermediaries and direct relationship models.

Institutional Dimesion

Surrounding these production and trade activities, there is a broader governance and financial architecture. The Specialty Coffee Association (2025) illustrates how coffee operates within an interconnected system that extends beyond the physical movement of coffee beans. They highlight relationships among networks of governance, infrastructure, knowledge, and standards.

For example, financial institutions help keep the coffee trade moving by providing credit and working capital needed for harvesting, purchasing, storage, and export. At the same time, insurance providers help reduce exposure to crop losses, transport disruptions, and market uncertainty. Prices are also influenced beyond the farm level, as futures traders and international commodity exchanges shape benchmark rates that often guide contracts throughout the industry. Alongside these market forces, certification bodies establish standards related to environmental practices, labour conditions, and traceability, while government agencies oversee exports, customs procedures, taxation, and agricultural policy. The physical movement of coffee further depends on transportation networks, ports, and storage facilities, and the system is continuously shaped by research institutions, universities, and NGOs that contribute technical knowledge, innovation, and sustainability initiatives.

Together, these agronomic, commercial, and institutional dimensions illustrate that coffee is not simply a linear progression from farm to cup. It is an interconnected system in which ecological processes, market transactions, and governance structures interact. Recognizing this interconnectedness provides the necessary context before examining how sustainability is defined and where structural tensions emerge.

Price Structure & Volatility

Coffee operates as an agricultural product, a globally traded commodity and a consumer good. These overlapping identities ultimately generate how value is created, priced and distributed. At the commodity level, the New York C Market functions as the primary global reference price for Arabica coffee. As Wienhold & Roberts (2025) explain, the C price is established through speculative trading in global futures markets, where contracts are bought and sold based on anticipated supply, demand, currency fluctuations, and macroeconomic expectations, such as inflation, interest rate changes, recession, and geoepolitical instability. As a result, price changes do not always correlate with production costs, harvest conditions, or quality investments at origin. Therefore, producers remain exposed to volatility generated by global capital dynamics over which they have limited influence.

Although most physical coffee contracts include differentials above or below the C price, this benchmark still serves as the starting point for negotiations. Wienhold and Roberts (2025) report that the C market price remains the main reference point even in the specialty coffee industry. This means that even when producers have clear production costs, investment needs, and projected selling prices, the final price is often shaped by an external market benchmark. As a result, farm-level costs and operational realities are not always fully considered when final prices are set.

Specialty coffee has positioned quality, traceability, and flavour uniqueness as mechanisms for value creation. In order to achieve this uniqueness in coffee, producers have invested in new coffee plant varietals, selective harvesting and post-harvest innovation. However, Wienhold and Roberts (2025) describe that a higher value in the market does not always translate to higher income for producers. Even when specialty coffee sells at a premium price, only a small share of that value often remains in producing countries. This is because price increases happen later in the supply chain. When coffee gets roasted, packaged, and branded, it

adds significant value to the final product. As coffee moves closer to the consumer, more money is generated, but that price increase does not always flow back to the producers.

For producers, upgrading to specialty coffee can also be costly. Selective harvesting increases labour demands. Meticulous processing requires infrastructure, training, and risk tolerance. Experimentation with fermentation or micro-lots introduces uncertainty, as results may be inconsistent or buyers may not pay enough to cover the extra work. As a result, quality differentiation involves higher upfront investment and greater exposure to potential losses.

Certification schemes such as Fairtrade and Organic emerged as additional mechanisms intended to stabilize income and communicate ethical standards. Certified coffees typically command higher green prices, often approximately one dollar more per pound on average. Yet compliance costs, documentation, audits, fees, and changes in farm practices can offset these gains. In some cases, studies show that farmers' share of the export price is actually lower for certified coffees (81%) compared to general specialty contracts (86%), due to the costs associated with maintaining certification.

Overall, specialty coffee and certifications can create new opportunities, but value distribution within the supply chain remains uneven. Producers may carry more investment and risk, while a larger share of the final value is often captured further downstream. At the same time, prices of green coffee continue to be influenced by the New York C Market, bringing volatility shaped by global financial forces. Sudden market swings can affect returns and make long-term planning more difficult. This highlights that quality premiums alone cannot fully address the structural pressures shaped by the volatility of coffee trading.

Risks in Coffee Agricultural Systems

Although coffee demand has grown and new value has been created, producers continue to face deeper structural pressures. This section focuses on three interconnected areas of risk: climate change, financial pressures, and changing production models linked to corporate concentration and monoculture. The following research section then builds on this context through producer-centred perspectives for further risk analysis.

Climate Change

Climate change has been widely recognized as one of the most pressing threats to global coffee production. As global temperatures rise and weather patterns become increasingly unstable, the ecological foundation of coffee cultivation is under significant strain. Gibbens (2022) reports that by 2050, up to 50% of the land currently suitable for coffee could become unsuitable due to extreme weather events, shifting rainfall patterns and rising temperatures. The planet has already warmed by approximately 1.1°C, intensifying heat stress in crops and increasing the frequency and severity of climate extremes. For Arabica coffee, this trend is concerning as it requires relatively narrow temperature ranges and predictable precipitation cycles to produce stable yields and maintain quality (Morton, 2007).

Arabica coffee's optimal growing temperature is within a narrow temperature range, generally between 18°C and 21°C, with stable seasonal conditions. When average temperatures remain above 23°C for long periods, coffee cherries may ripen too quickly, which can reduce cup quality. When seasonal temperatures rise above 30°C, plants may experience stress that affects flowering and fruit development. In Latin America, potential yield reductions between 23% and 35% have been projected under future climate scenarios.

Water availability can further intensify these risks. As Koutouleas et al. (2024) explain, rising temperatures are expected to reduce or destabilize water resources in many coffee-growing regions. Irregular rainfall, longer dry periods and changing weather cycles can lower yields and make production less predictable.

Temperature Range	Coffee Production Effects
18°C >	Limit crop success
18°C - 21°C	Optimum range for crop success
<23 °C	Loss of quality
<30 °C	Depressed growth and abnormalities

Table 1: Impact of Temperature on Coffee Crop Success (Morton, 2007)

In response, adaptation strategies have gained traction within research and practice. One approach is agrofrorestry, a farming system where coffee is grown alongside shade trees and, in some cases, other crops. Shade trees can moderate microclimates, reduce peak temperatures, and improve soil retention. Compared to monoculture systems, agroforestry systems have demonstrated greater resilience under warming scenarios. Gidey et al. (2020) found that projected yield declines were significantly lower in agroforestry systems compared to monoculture plantations. Similarly, Peruta et al. (2025) report that optimized shade management could increase yields between 10% and 18% under the right conditions.

These findings suggest that adaptation is possible, yet it requires investment, knowledge, and time. It also does not remove the larger uncertainty created by climate change. Rising temperatures may reshape where coffee can grow, how it must be cultivated, and who bears the cost of adapting to these changes.

Financial & Market Risks

Beyond environmental uncertainty, coffee producers face significant financial risks that shape their capacity to maintain production and invest in their business. These risks include: seasonal nature of coffee agriculture, uneven cash flows, credit dependence, and broader livelihood pressures affecting rural households. Coffee production follows a highly seasonal cycle. Harvest occurs once per year in most producing regions, meaning that producers typically receive income in a limited number of payments tied to the sale of their harvest. As Castellano (2021) explains, farmers often receive the majority of their income as a lump sum at a particular point of the year when the coffee is sold. This makes managing household expenses and farm investments challenging, particularly when producers deal with volatility in market prices and climate conditions.

At the same time, production costs are distributed unevenly throughout the agricultural season. According to Ruben (2023), major input purchases such as seedlings, fertilizers, and farm maintenance must occur months or even years before harvest revenues are received. Producers must also finance labour for pruning, farm management, and harvesting. These expenses frequently require credit, advances from traders, or informal loans.

Ruben (2023) also explains that the structure of payments further complicates cash flow. Revenues are received in stages: as an advance payment before harvest, an initial payment after coffee

delivery and a final payment once export contracts are completed. However, a significant portion of these payments is already committed to repaying loans, paying input providers, or covering labour costs. This pattern means that lump-sum income received after harvest is often insufficient for major investments or household consumption needs.

Coffee farming is therefore embedded within broader household livelihood strategies. Smallholder farms typically operate as part of diversified rural economies where families balance coffee production with other agricultural activities and off-farm income sources. According to Ruben (2023), farmers often allocate labour and financial resources across multiple activities in order to stabilize household consumption and reduce risk. While diversification can improve resilience, it may also limit the amount of attention and investment directed toward coffee production itself.

The financial pressures also influence long-term decisions about the future of coffee farming. Succession, the transfer of farms to the next generation, has become an increasingly important concern in many producing regions. Research indicates that the likelihood of family succession is influenced by several economic and geographic factors. For example, higher farm income increases the probability that younger family members will take over production, while low profitability discourages continuation (Bavorová et al., 2024). Geography also plays a role in this. Farms located far from urban centers often face lower succession rates, as younger generations may seek employment opportunities in urban cities (Bertoni & Cavicchioli, 2016). Land tenure security further shapes these decisions. When farmers lack clear ownership rights or operate under insecure leasing arrangements, successors may hesitate to invest in long-term farm improvements (Bednaříková et al., 2016).

Taken together, these dynamics reveal that financial risk in coffee production extends beyond price and climate volatility. Financial risk encompasses seasonal cash flows, credit dependence, household livelihood strategies, and generational transitions. These factors shape how producers invest in their farms, adapt to environmental pressures, and sustain coffee production over time.

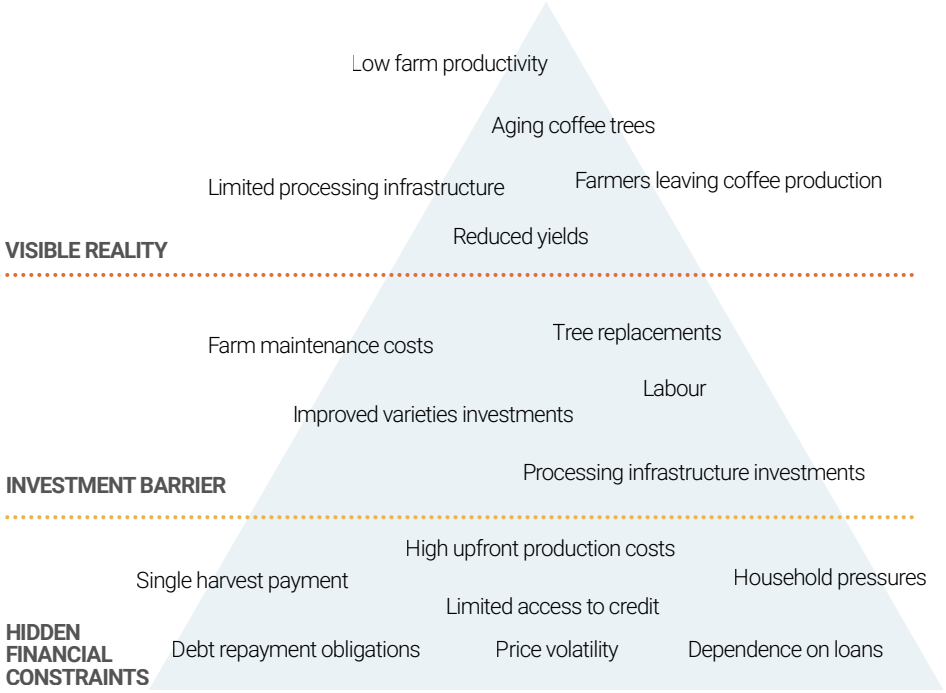


Figure 4: Hidden financial barriers that constrain investment in coffee production

Corporate Concentration & Monoculture

Another emerging risk within the coffee production system relates to the increasing influence of large corporations and their expansion in production models. The global coffee industry is characterized by a highly concentrated downstream market, where a small number of multinational companies dominate trading, roasting, and retail distribution. These corporations often aggregate coffee from thousands of small farms through traders, exporters, or cooperatives, allowing a greater influence over sourcing standards, quality requirements, and sustainability practices within the coffee supply chain, as explained by De Felice et al. (2025).

This concentration of market power can indirectly shape production systems. Large buyers frequently prioritize consistency, predictable volumes, and standardized quality profiles. These requirements may encourage production to favour uniform varieties and large-scale cultivation practices. These pressures may contribute to the expansion of monoculture systems, where a single crop variety dominates a farming landscape. However, monoculture practices may reduce biodiversity and increase vulnerability to pests, diseases, and climate variability (Fuchs et al., 2021).

Historically, coffee cultivation has been integrated into agroforestry systems, where coffee plants grow under shade trees alongside other crops. These systems help regulate microclimates, maintain soil fertility, and support ecological diversity. In contrast, intensified monoculture production can alter ecosystem dynamics and reduce habitat diversity. Research by Chaurasia et al. (2020) and Yuvaraj S et al. (2024) suggests that intensive agricultural practices may suppress local genetic biodiversity, affect ecological interactions between insects, soil microorganisms, and surrounding ecosystems and contribute to the development of new resistant pests.

Technological innovation may further shape coffee production practices. At present, there is no commercially available genetically modified coffee, according to the National Coffee Association (Bowman, 2023). However, experimental research has explored genetically engineered coffee varieties designed to improve resistance to pests and diseases. However, despite the potential benefits of new biotechnology, genetically modified crops raise ecological concerns, such as affecting non-target species and altering populations (Haile et al., 2020).

At the same time, critics argue that biotechnology and monoculture development in agriculture is often driven by commercial interests that prioritize productivity and market expansion (Cornish, 2018). Within the coffee sector, this dynamic may influence how future coffee production models are designed and who benefits from these practices. As global coffee demand continues to grow, balancing productivity with ecological resilience remains a key challenge for long-term sustainability of coffee production.

2. RESEARCH QUESTION

Research Question

As explored in previous sections, producers face multiple pressures: climate change, financial structures, and market volatility. At the same time, growing demand for specialty coffee and sustainability narratives is transforming how coffee is marketed and consumed. These dynamics suggest that sustainability in coffee should be considered as a system-level challenge shaped by relationships between actors, flows of value, and coordination across the supply chain.

Therefore, this research approaches coffee sustainability through a systems perspective that seeks to understand how risks, incentives, and decision-making structures interact across the coffee value chain. It recognizes that the coffee system is interconnected, where decisions made in one part of the chain can shape outcomes in another. Central to this perspective is the recognition that producers' realities must remain at the centre of the analysis, as lived experiences help reveal the broader structural forces shaping the sector. This research is also grounded in collaboration with the coffee farming community of La Papaya, located in Saraguro, Ecuador. Through participatory engagement, it aims to examine existing system dynamics and to explore strategic directions that reflect producer priorities, local knowledge, and emerging opportunities within the specialty coffee industry.

Primary Research Question

How can coffee sustainability be understood as a system-level challenge, and what strategic directions emerge when producers' realities are placed at the centre?

Secondary Research Questions

How is risk distributed across the coffee value chain?
Where do coordination gaps and misalignments occur within the system?

3. LA PAPAYA

Coffee Community Context

La Papaya is a rural community located in San Pablo de Tenta in the Saraguro canton of Loja province, Ecuador. The community has an estimated population of around 300 residents and is characterized by smallholder agricultural production systems. Coffee cultivation has expanded progressively in the area over the past decades and has become a central economic activity within the community. Currently, approximately 65 families are organized through the Asociación de Caficultores de La Papaya (La Papaya Coffee Growers Association), which coordinates aspects of production and commercialization. Coffee is cultivated across an estimated 90 hectares, with more than 150,000 coffee plants in production.

Producers in the community follow parameters aimed at maintaining consistent quality across farms, which has received local and international recognition. In 2021, the community gained global visibility when a coffee from La Papaya won the Cup of Excellence competition, an internationally recognised contest where coffees are blind tasted and scored by expert judges More recently in 2024, a producer from the community won the Loja Sabor a Café, a local competition, with a coffee scoring 89.15 points, further strengthening the reputation of the region within the specialty coffee market, as coffees near 90 points are widely seen as exceptional quality. Producers attribute the distinctive quality of coffee from La Papaya to a combination of environmental factors, including mountainous terrain, high levels of sunlight, nutrient-rich soils, and favourable climate conditions.

The research took place through visits to the community and by gaining an understanding of the broader operations of La Papaya. The researcher travelled from the capital city of Quito to Loja, and then onward to La Papaya through the remarkable landscapes of Los Andes. The journey itself offered an important reminder of the geography and natural beauty that shape life in coffee-producing regions. Time was also spent getting to know the people in the community and nearby towns, including the wider Saraguro region. Community members opened their doors with generosity, sharing their hospitality, knowledge and passion for coffee. This research would not have been possible without their openness, trust and many conversations and cups of coffee shared across the beautiful landscape of La Papaya.

Figure 5: Oswaldo Torres and researcher Valeria Suing walking through coffee plantations

La Papaya represents a community where knowledge about coffee cultivation, land management, and market participation has been developed through collective practice. Producers' perspectives reflect not only technical knowledge of farming but also an understanding of the economic, social, and environmental pressures that shape their practice.

These experiences are understood as essential sources of knowledge for examining how sustainability challenges are experienced at the farm and community level.

Figure 6: Oswaldo Torres and researcher Valeria Suing during a community visit in La Papaya, sharing conversation.

4. METHODOLOGY

Research Paradigm

This research is grounded in both interpretative and transformational research paradigms. The interpretative paradigm emphasizes understanding social realities through the perspective and experience of participants. The research does not seek to find a single objective truth, but rather it recognizes that knowledge is constructed through cultural, social, and relational contexts. Within the context of this research, this paradigm supports an exploration of how producers understand sustainability, risk, and the future of coffee production.

This research also adopts a transformational perspective, which aims to challenge dominant narratives and create opportunities for change. This research centers on the experiences and priorities of producers in La Papaya, recognizing that knowledge is co-constructed through relationships, and dialogue. This research, therefore, is guided by the ethical principles of respect, reciprocity and responsibility, ensuring that engagement is collaborative rather than extractive.

Approach

This research combines ethnographic inquiry, systems thinking, strategic foresight, and design-oriented approaches.

Ethnographic Approach

Ethnographic methods were used to develop a deeper understanding of the cultural, social and economic realities of coffee production in La Papaya. This involved immersion and observation, allowing the researcher to understand coffee production practices, relationships, and processes within the community. Fieldwork included time spent in La Papaya, informal conversations with producers, and participation in local activities and events related to the coffee sector in the region. These experiences provided contextual insight into the cultural role of coffee in the community and helped situate research activities within the broader lived realities of the community.

Systems-Informed Approach

Given the complexity of the research area, this project adopts a systems-informed perspective. Systems thinking was used to understand relationships between stakeholders, flows of value, and distribution of risk across the supply chain. By examining global market values and local realities, the research seeks to identify gaps and leverage points within the coffee system. This perspective allows sustainability to be understood as a system-level challenge shaped by economic, environmental, and institutional dynamics.

Foresight-Oriented Approach

This research also integrates strategic foresight, which focuses on exploring possible futures and supporting long-term thinking in uncertain environments. Foresight methods were used to encourage reflection on possible futures for coffee production,

including leverage points, opportunities and long-term desires for the community.

Design Thinking Approach

This research is also informed by design thinking, through iterative learning, participatory engagement and problem framing. To structure the research process, this project draws on the Double Diamond framework, which provides a structured approach for moving between broad exploration and focused synthesis. The model moves through four stages: Discover, Define, Develop, and Deliver. It alternates between divergence and convergence thinking, allowing it to first expand understanding of the broader coffee system, then narrow towards key challenges, insights through community engagement, and finally identify strategic directions gounded in lived realities.

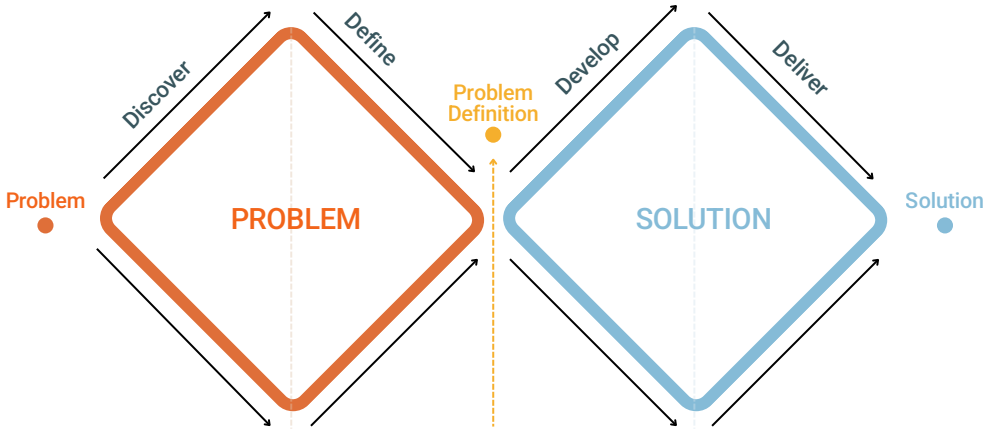


Figure 7: Design thinking process using the Double Diamond framework

Discover

The Discover phase focused on understanding the broader coffee system and the structural forces shaping sustainability in coffee production.

Define

The Define phase synthesized insights from system research to frame the core challenges. This stage identifies structural tensions within the coffee system, allowing the research to articulate the wicked problem.

Develop

The Develop phase focused on understanding the local realities of the La Papaya community. This phase highlights how producers understand sustainability, risks, and opportunities within their own context.

Deliver

The Deliver phase synthesized system-level insights and community perspectives to identify potential strategic directions. This stage develops strategic pathways that align with producer priorities and systemic realities.

Methods

Literature Review

A literature review was conducted to situate the research within broader academic, and industry discussions on sustainability in coffee production. The review examined themes such as the global coffee crisis, climate change impacts on coffee farming, certification systems, and economic structures shaping coffee markets. The purpose was to identify dominant narratives within the industry, and to contextualize producer experiences within larger global and national dynamics.

Semi-Structured Interviews and Observation

The research included seven semi-structured interviews with stakeholders connected to the coffee sector in Loja. Participants included three coffee producers from La Papaya, two coffee exporters, one expert in coffee tourism in Loja and one government representative from the Ministry of Production. Semi-structured interviews allowed exploration in themes related to sustainability, market dynamics, and challenges.

Participant observation provided contextual insight into the cultural and social dimensions of coffee production, including community relationships, values, and everyday decision-making processes. This was carried out through visits to La Papaya, where time was spent in the community, visiting several farms, and production spaces. Informal conversations with producers, their families, and local actors helped deepen understanding beyond formal interviews, offering insights on how coffee is discussed, valued, and managed in practice. The researcher also attended industry gatherings such as Ruta del Café, an event related to agro-tourism in Loja. These spaces offered valuable perspectives on how coffee identity is presented and felt as a source of local identity.

System Maps

This included a coffee value chain map to show how coffee moves from farm to final consumer, and how value is added or captured at different stages. A risk concentration analysis explored where environmental, financial, and market pressures tend to accumulate. Reinforcing loop diagrams were used to identify recurring patterns such as fragmentation, weak feedback loops, or instability that can reproduce challenges over time.

A stakeholder motivation matrix mapped the priorities and incentives of different actors across the system, including producers, exporters, importers, roasters, consumers, institutions, and financial actors. A recognition of innovation map was also created to examine where innovation is most visible and rewarded within the coffee system, and where it may remain overlooked.

Foresight Tools

To explore future possibilities, the research combined signals scanning through a STEEPV lens with strategic foresight tools. STEEPV analysis (social, technological, economic, environmental, political, and values) was used to organize signals of change and identify the broader forces shaping the future of coffee. This helped reveal emerging risks, shifting consumer expectations, technological developments, environmental pressures, and policy dynamics influencing the sector.

Building on this, a futures wheel was used to examine how changes in areas such as coordination, recognition, or continuity could create ripple effects across the system over time. Theory of change frameworks were then developed to translate leverage points into practical pathways for action, showing how targeted inputs and activities could contribute to longer-term outcomes.

Asynchronous Participatory Activity

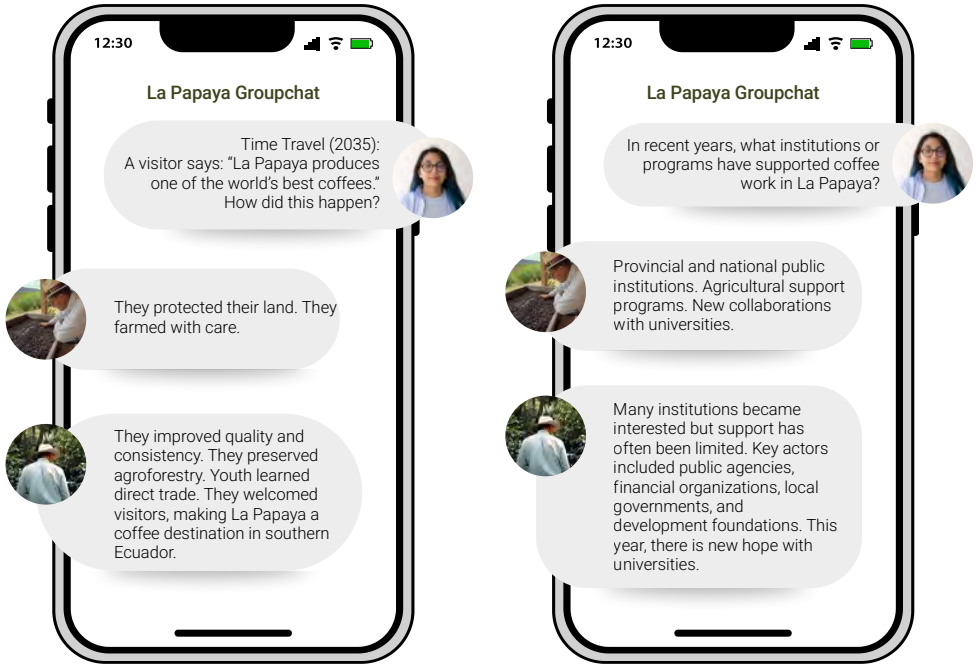


Figure 8: Examples of conversations that took place in the group chat

Participants also took part in a shared group chat where the researcher posted short daily prompts related to coffee farming risks, current realities and future aspirations. This format created an informal space where producers could respond when time allowed and in ways that felt natural to them. Participants shared reflections through text messages. It also allowed participants to build on one another's ideas, creating a collective conversation around shared challenges, opportunities and hopes for the future of the community.

Analytical Framework

Thematic Coding

Interview transcripts, field notes and responses were analyzed using thematic coding. This method involved identifying recurring themes, patterns and relationships across data. The analysis began with readings of collected material; during this process, segments of text representing key ideas or experiences were identified and assigned initial codes. These coded insights were then organized using affinity mapping, grouping observations into clusters.

This process allowed the research to move from individual observations towards broader analytical categories, while maintaining a close connection to participant perspectives. This synthesis of qualitative insights supported the identification of dynamics and experiences within the coffee system and the experiences of La Papaya community members.

Systems Thinking

The researcher used system mapping as a sensemaking tool. System maps were used as an analytical framework to understand the broader dynamics shaping coffee production and sustainability. This approach helped structure the analysis and supported a systemic understanding of the research context. It also provided a framework for synthesizing insights across different sources of data and local experiences within broader sector dynamics.

Positionality

As an Ecuadorian with a personal and cultural connection to the region, and as someone working within the coffee industry, the researcher approached this project with an awareness of the social, cultural, and economic significance of coffee within local communities. Cultural and language proximity influenced access, communication, and interpretation throughout the project. However, familiarity with this context also carried the risk of assumption, over identification, or bias.

Participants were approached as knowledge holders whose experiences shaped the direction of the research. This required transparency about the purpose of the study and care in how insights were interpreted and represented. Acknowledging this positionality was essential for maintaining ethical transparency throughout the research process. To manage potential bias, the researcher practiced ongoing reflexivity, grounded interpretations in participants' own accounts, and triangulated insights across interviews, field observations, participatory activities, and secondary research.

Limitations

The time spent in La Papaya was limited, which reduced the opportunity to observe practices and community dynamics across longer production cycles. Coffee farming follows seasonal rhythms, where labour demands and decision-making practices can shift throughout the year. A longer period of immersion could have provided deeper insight into adaptation strategies across different stages of the harvest cycle. The number of visits to La Papaya was also affected by long travel times and road closures caused by rain-related landslides.

The number of interviews conducted also represented a small sample of actors within the broader coffee system. Additional interviews with more producers and other sector participants, such as roasters, importers, consumers, NGOs, and financial actors, could have expanded the range of experiences captured in this research. Further financial analysis was also beyond the scope of this study due to time constraints. As a result, market opportunity analysis and financial feasibility models were not examined in full depth.

The original intention of this research project included a more extensive in-person workshop with community members. However, coordinating participation proved challenging due to producers' work demands and travel schedules. In response, asynchronous methods were used to create more flexible forms of engagement. While these approaches generated meaningful contributions, future research would benefit from longer in-person engagement periods that could create greater opportunities for deeper collaboration and participation with community members.

5. FINDINGS

Overview of Themes Across Stakeholder Groups

Primary research was conducted with multiple actors across the coffee system. While many themes overlap, each group emphasized different aspects of the system based on their position, responsibilities, and exposure. This section outlines the main themes that emerged across different stakeholder groups, highlighting patterns in how the system is experienced from different perspectives. Here are the actors involved in this process and themes explored:

PRODUCERS IN LA PAPAYA

- Pathways Into Coffee
- Main Challenges of Producing Coffee
- What Makes La Papaya Coffee Special?
- Association's Role
- Tourism as Potential Opportunity
- Future Explorations

EXPORTERS

- Exporter's Role
- Pricing and Market Access
- Visibility and Potential Risks

GOVERNMENT ACTOR

- Market Coordination and Regional Opportunity
- Fragmentation & Knowledge Gaps
- Protected Denomination of Origin and Traceability

TOURISM AND INDUSTRY ACTOR

- Coffee Tourism
- Capacity Building and Phased Development
- Coordination Across Actors

Producers in La Papaya Community

A central part of this research involved learning from producers in La Papaya through multiple forms of engagement. This involved semi-structured interviews, conversations through in-person visits, follow-up online conversations, and participatory activities through a shared group chat. This allowed insights to emerge gradually, providing a fuller understanding of producer realities.

Three producers became especially important contributors to this stage of research: Oswaldo Torres, Carlos Jaramillo, and Curt Madison. Each offered a distinct perspective shaped by their role in the community, professional experience, and personal outlook on the industry. Together, their insights revealed both concerns and different ways of imagining opportunity.

Oswaldo, president of La Papaya Coffee Growers Association, played a particularly important role. He guided visits through the community, shared the local history of coffee, and explained many of the realities of farming and organizing at the community level. Conversations with Oswaldo took place on several occasions, both in person and online. His reflections provided insights into producer realities as well as broader collective opportunities for the association.

Carlos Jaramillo, a member of the association board, was first met during the visit to La Papaya. Initial conversations in the community were later continued through online follow-ups. Carlos gave insights into opportunities for collaboration, highlighting visibility and long-term opportunities for the community.

Curt Madison, also a member of the association, was not present in La Papaya during the field visit, but later participated through an online semi-structured interview. His perspective gave insights into quality, experimentation, producer recognition, and caution regarding tourism initiatives. Creative processes on coffee

production were also explored, further defining meaning of specialty coffee and experimentation.

Pathways Into Coffee

One of the first themes explored in interviews was how producers entered the coffee industry and their motivations for being in this sector. Responses across interviews suggested that coffee is not always approached from a profit-only perspective. Instead, involvement in coffee is often part of a broader life decisions connected to family, place, and values.

For example, Oswlado explained that his decision to work in coffee emerged through a search for **"stability, peace, and rootedness in the land."** He spoke about coffee as a pathway towards a more meaningful life, where work could remain connected to territory and nature. Curt also highlighted the importance of working with family and a deep appreciation for the landscape in La Papaya. These perspectives are important in order to understand how decisions around farming may also be tied to identity, community and land stewardship.

Main Challenges of Producing Coffee

When producers were asked about the realities of coffee farming, responses often revolved around uncertainty. Unlike many businesses where revenue may come quickly, coffee requires years of investment before returns are realized. Producers must do maintenance, strategize crops, manage labour, and absorb risk while waiting for future harvests.

Oswaldo repeatedly described coffee as an expensive practice. He referred to the cost of preparing land, waiting long periods for production, hiring labour, and facing climate uncertainty risks.

Labour was another recurring challenge, as stated by Carlos. He explained that labour shortage can be severe, noting that at times they must **"practically beg for labour."** Questions about market access also surfaced concerns around bargaining power.

Producers described that there is limited access to customers and few options when selling coffee. Another common theme explored through interviews was uncertainty around how prices are defined, with producers often depending on prices shaped externally by the market.

What Makes La Papaya Coffee Special?

When discussing coffee quality, there was a strong pride in the coffee potential of La Papaya. Producers linked quality with processing techniques, creativity, environmental conditions, care, and continuous learning. Oswalso described that agroforestry practices are important in the community, as a way to protect soil health and support plant health.

Curt placed a strong emphasis on recognition and appreciation, stating that **"what matters more than price is knowing where the coffee is going and that people appreciate the coffee."** This highlights the importance of understanding who the customer is and feeling that their work is valued and represented through care.

Curt also described experimentation as a central practice to specialty coffee production. He spoke about fermentation trials and careful post-harvest processing as a way to create distinctive flavour profiles. He described that production can be a creative process in which farmers shape final taste through choices made during cultivation and processing. This guided the conversation around the importance of feedback loops. Curt explained that tasting his coffee and understanding how farming decisions influenced the flavour is essential to his practice, allowing him to continue learning and innovating.

Association's Role

Producers described the association as a platform for visibility, negotiation and future development. Carlos explained efforts of starting to commercialize coffee through a soon-to-launch website. He described the website as a tool for **"letting people know we exist,"** creating storytelling opportunities and access to new markets.

Carlos repeatedly returned to the phrase **"unity creates strength,"** using it to explain why stronger shared structures matter. He expressed that success would mean stronger negotiation power, partnerships, and clearer goals. Oswaldo also described the association as a potential mechanism for stability. At the same time, he noted that there are limited capital constraints to support more ambitious initiatives and future investments. Overall, the association was presented as a structure that supports both community cohesion and the coffee identity of La Papaya. Producers described it as a strategic platform with growing emphasis on creating new opportunities and finding practical ways to implement them.

Tourism as Potential Opportunity

Tourism emerged frequently when producers were asked about future opportunities. Carlos explained that he has experience hosting visitors through farm tours. He saw tourism as promising, particularly with a growing interest in coffee culture among younger generations and increasing recognition of Loja as a specialty coffee region.

Oswaldo also expressed interest in future tourism possibilities, including farm stays, events, nature walks, and the development of a coffee shop. However, Oswaldo also noted some practical barriers, such as insufficient infrastructure, limited staff, and acknowledged that agricultural work remains the main priority. Curt also offered a more cautious perspective. He noted that tourism can sometimes shift benefits toward external actors. He suggested that tourism development must be designed carefully if communities are to retain agency and maintain most of the value capture.

Future Explorations

When asked about the future of coffee production, producers focused on practical and structural needs. Curt highlighted priorities such as improved post-harvest infrastructure, better market access, technical support for quality control, and assistance in navigating the government's procedures. He also emphasized the importance of stronger youth participation in coffee. Carlos emphasized the need for a tourism plan, communication and branding tools, international access, and more direct relationships with buyers to reduce reliance on intermediaries. Oswaldo pointed towards income diversification.

In the asynchronous group chat, future-oriented prompts asked participants to imagine desired futures for 2035. Responses included conserving the land, investing more in agroforestry systems, learning through collaboration with universities, helping younger generations get involved in coffee, and opening La Papaya to visitors through sensory and cultural coffee experiences.

Overall Reflection

Across interviews and participatory activities, producers did not speak about coffee only as a crop or commodity. They spoke about it as livelihood, identity, uncertainty, creativity, and collective aspiration. Their insights show that sustainability at origin is not only about farming techniques. It also involves recognition, relationships, bargaining power, infrastructure, generational continuity, and the ability to imagine a future that feels worth staying in.

Exporters

To better understand how coffee moves into broader markets and have a wider perspective on the coffee supply chain, this research also included conversations with two exporters, Roberto Jimenez and Gabriela Correa. Their perspectives brought insightful information as they have close relationships with producers, as well as international buyers. This has given them visibility into farm realities and external market demands.

Roberto was met in person in Loja, where the conversation centred on the region's coffee sector, its commercial evolutions, and the realities of exporting practices. His perspective came from years of experience working with producers, associations, and international markets. He spoke about quality incentives, pricing structures, and buyer behaviour.

Gabriela participated in an online interview. Her perspective added valuable insight into communication, commercial relationships, and changing forms of market access. Gabriela also brought specific perspectives on La Papaya, as she has a close relationship with the community. The two interviews allowed reflections on how value is shaped within the industry and how coffee enters wider commercial networks.

Exporter's Role

When asked about their role, both talked about responsibilities such as evaluating coffee quality, purchasing green coffee, preparing lots for shipment, coordinating logistics, and maintaining relationships with producers and buyers. Exporters must also navigate changing market conditions while also balancing expectations on both sides of the chain. This position places exporters in a mediation role. Both interviews revealed that part of their roles is to understand producer realities such as harvesting times, quality variation, and financing needs, while also responding to buyers with different desires such as consistency, transparency, and timely delivery.

Pricing and Market Access

A recurrent theme in both interviews was price instability and the difficulty of ensuring that coffee value reflects the effort required to produce specialty coffee. Roberto described a period when **"specialty coffee differentials narrowed,"** referring to a broader shift in the global market where the extra premium paid for higher-quality coffee became smaller. In practice, this meant that high-scoring coffees could sell for prices close to non-specialty coffees, even though they required far more care, labour, and investment from producers. This created uncertainty around whether the additional effort of producing specialty coffee would be properly rewarded. As the conversation moved from global market dynamics to local realities, Roberto also explained that prices are not always based on the true cost of production. Instead, they may be influenced by external references, such as what other recognized farms are receiving or what buyers perceive as the market norm. This suggests that pricing can be shaped by comparison and reputation, rather than by the actual time, labour, and resources required to produce the coffee.

Gabriela's interview gave insights into how producers gain access to specialty markets. One key barrier she identified was language. She noted that **"producers who speak English and travel can sell their coffee more easily."** This highlights that market access does not depend on quality alone, but also on mobility, communication, and the ability to build relationships with buyers. She also described digital tools as increasingly transformative, explaining that **"the digital world has changed everything. Producers can now connect with buyers directly through social media."** These platforms can help producers become more visible and create direct connections that were harder to achieve in the past.

Visibility and Potential Risks

While Gabriela recognized the opportunities created by visibility, she also expressed caution. She noted that **“sometimes the story is sold, but the coffee is not bought at the value it deserves.”** She reflected that roasters may visit farms, take photographs, and build narratives that create value for retail markets without necessarily improving returns for producers. This is an important insight as it shows that traceability and storytelling can generate recognition while still leaving economic benefits unevenly distributed. Being visible does not always mean being fairly compensated.

Both exporters also pointed towards wider structural risks affecting the coffee sector. Roberto referenced high production costs, labour shortages, weak infrastructure, and financing constraints. These challenges can make it difficult for producers to invest, scale operations, or remain stable through difficult seasons. On the other hand, Gabriela highlighted climate variability as a concern, explaining that **“with climate change, you harvest less coffee. Producers cannot always promise the same quantities.”** This shows how environmental risk affects farm yields and the reliability of commercial relationships. When harvest volumes become less predictable, it becomes harder to commit to buyers who need a certain quantity.

Another important theme identified was the limit of premium markets. Gabriela explained that not every producer can depend on top-scoring coffees alone; she noted that producers also need to work on volume. Roberto similarly suggested that while microlots and exceptional coffees can generate strong prices, these markets are relatively small. Overall, there was an emphasis that long-term sustainability should address uneven value distribution, climate risk, financing barriers, and access to dependable markets.

Overall Reflection

The perspectives of Roberto and Gabriela show that exporting creates a space where logistics, pricing, communication, and trust shape value. Their interviews also revealed an important tension: while specialty coffee creates new ways for producers to be seen, those same mechanisms do not always guarantee fairer returns. Visibility can increase recognition, but recognition alone does not ensure stronger bargaining power, stable income or a more equitable share of final value.

Government Actor

To better understand the institutional landscape surrounding coffee in Loja, the research included a semi-structured interview with Mayra Bustamante, an Entrepreneurship Analyst at the Ministry of Production, Foreign Trade, Investments and Fisheries. She was met in person at her office in Loja, where she shared perspectives from within the public sector on current efforts to support the regional coffee industry. She described her role primarily in terms of market articulation and coordination, helping connect producers, exporters, and international buyers while supporting commercialization, branding, and visibility efforts for the province.

Market Coordination and Regional Opportunity

When discussing her work, Mayra explained that one of the ministry's priorities is helping create stronger commercial pathways for producers. This includes participation in fairs, business roundtables, and promotional initiatives that position Loja coffee in national and international markets. Her comments reflected the view that quality coffee alone is not enough if producers remain disconnected from buyers and market opportunities.

She also highlighted the growing reputation of Loja coffee, noting that competitions and public events have helped increase visibility for the region. However, she recognized that these achievements do not always translate into broad participation. Access to specialty markets often remains concentrated among a smaller group of producers who already have stronger networks, resources or mobility.

Fragmentation & Knowledge Gaps

A recurrent theme in the interview was the fragmentation of institutional support. Mayra explained that different organizations contribute to the sector in specific ways, but not always in a coordinated manner. Without stronger alignment, initiatives may lose continuity or fail to build on one another. She described a landscape where many actors are involved, but where integration remains a challenge. For example, one institution may offer training in coffee quality, while another later introduces branding initiatives without fully connecting to the previous work. In other cases, promotional campaigns may encourage tourism before basic conditions such as signage, visitor readiness, or local coordination are in place. This can create duplication of efforts, gaps between stages of development, or programmes that do not match the current needs of producers.

Mayra also identified barriers related to producer knowledge and access to information. She noted that in some cases, producers do not always have a clear understanding of their own cup profiles, market positioning or where their coffee may fit commercially. One reflection captured in the interview was that **"not even producers themselves always know what coffee they have."** This highlights the importance of knowledge on quality, cup flavour profiles, and how to connect these to market opportunities.

Protected Denomination of Origin and Traceability

Another important topic discussed was the Protected Denomination of Origin (PDO) for Loja coffee. Mayra described this as a tool designed to protect regional identity and differentiate coffee based on territory, local practices and reputation. In principle, the PDO can help position Loja coffee more strongly in international markets by linking value to place. She also explained that it can serve as a response to contraband and misrepresentation in the market, helping ensure that coffee sold as Loja coffee genuinely comes from the region.

She also referred to growing interest in strengthening traceability

through tools such as QR codes, certification seals, and blockchain systems. These tools are meant to make the journey of coffee more visible, allowing buyers and consumers to verify where the coffee comes from, who produced it, and how it was processed. They can also help communicate the story, identity, and work behind the product, creating greater trust and transparency in the market.

At the same time, the interview suggested that branding and traceability tools alone are not enough. Their real value depends on how well they are managed, whether producers are actively included and whether buyers understand and trust the information being shared. Most importantly, recognition must connect to real commercial benefits. If origin stories and traceability create visibility but do not improve prices, market access, or producer stability, their impact remains limited.

Overall Reflection

Mayra Bustamante's perspective shows that public institutions can play an important role in helping coffee sectors organize, become visible, and access new markets. At the same time, her interview highlights that recognition alone does not solve deeper structural challenges. Stronger coordination, clearer market pathways, better information systems, and more inclusive participation remain essential if the benefits of Loja's growing coffee reputation are to reach a wider number of producers.

Tourism & Industry Actor

To better understand emerging opportunities such as agro-tourism, this research also included an online interview with Tomoko Tanaka. Her perspective was especially valuable because she works at the intersection of training, tourism development, and quality feedback systems, collaborating with producers, institutions and international partners to support the growth of the coffee sector in Loja.

Coffee Tourism

A central theme in the interview was the idea of coffee as an experiential and educational process. Tomoko described growing interest in opportunities where visitors can engage with the full journey of coffee, from seed to cup. This can include visiting farms, learning about cultivation, observing processing, tasting coffee at origin, and meeting the people behind production. She explained that many visitors are looking for **"the real story behind the cup,"** not only the final beverage.

This approach places value on transparency, storytelling, and direct human connection. Rather than coffee being experienced only as a product, it becomes a way for visitors and buyers to better understand the labour, knowledge, and landscapes behind each cup. Tomoko noted that these experiences can strengthen producer visibility and create an emotional connection with the origin, which may later support commercial relationships. Farm visits, tastings, workshops, and coffee routes can create additional income streams, increase visibility for producers and diversify the local economy.

Capacity Building and Phased Development

Training was presented as a central part of this work. Tomoko explained that programmes often focus on marketing, customer service and communication, including basic English for

interacting with international visitors. She noted that some producers have excellent coffee, but **“need support to communicate their value.”** These skills can help communities engage more confidently with new opportunities linked to tourism and direct market relationships. At the same time, Tomoko emphasized that tourism development must be gradual and aligned with the realities of farm life. She explained that infrastructure, safety, signage, and visitor management are necessary before growth can happen sustainably.

She emphasized the importance of continuous improvement rather than immediate transformation. Small, realistic steps, such as improving access roads, creating simple tasting spaces, or training local guides, were presented as more sustainable than ambitious projects disconnected from local realities.

Coordination Across Actors

The interview also pointed to coordination gaps across actors, including producers, exporters, and institutions. Tourism and training initiatives may exist, but they are not always fully integrated into the broader coffee system. Tomoko noted that **“many people want to help, but not always in the same direction.”**

This means that one group may promote tourism, another may focus on coffee quality and another on branding, without a shared long-term strategy connecting these efforts. As a result, opportunities can be missed, and resources spread thinly. Stronger collaboration across sectors could help connect tourism, coffee sales, branding and producer development into a more cohesive regional strategy.

Overall Reflection

Tomoko Tanaka’s perspective highlights that coffee can create value beyond green coffee sales. Through tourism, education, and direct experiences, coffee becomes a tool for connection, storytelling, and territorial development. At the same time, her insights emphasize that these opportunities require preparation, collaboration, and realistic pacing in order to generate meaningful benefits for producers and communities.

Affinity Map of Primary Research Themes

Recognititon & Identity	Market Access	Collective Efforts	Risks	Diversification	Future Capacity
Pride in La Papaya coffee quality	Prices often do not reflect production effort	Association seen as a platform for visibility and negotiation	Coffee seen as expensive and slow to return income	Tourism seen as a possible complementary income	Youth are central to the future of coffee
Quality linked to care, experimentation and environmental conditions	Price instability creates uncertainty	"Unity creates strength"	Labour shortages are severe	Coffee can be shared as an experience	Training needs go beyond farming
Appreciation matters, not only price	Market access depends on networks, language and mobility	Shared marketing and visibility of products	Climate variability affects yields and commitments	Visitors want seed-to-cup experiences	Marketing and communication matter for access
Producers want coffee to be recognised and valued	Storytelling can create value downstream	Desire for stronger partnerships	Producers manage uncertainty constantly	Tourism requires hosting skills and infrastructure	Producers need support communicating value
Coffee is tied to place, identity and community reputation	Visibility does not always mean fair compensation	Limited capital restricts growth	Fragmentation slows progress	Caution on extractive tourism practices	Farm work remains the priority over added activities
	Premium markets are limited in scale	Collective structures seen as necessary for future development			Long-term success depends on collaboration

Table 2: Affinity Map Synthesis of qualitative data

6. SYSTEM ANALYSIS

System Analysis Introduction

As discussed in previous sections, coffee production is embedded in a complex network of biological processes, market structures, institutional actors, and global consumption patterns. These elements interact across multiple scales, from farm-level production decisions to international trade dynamics. Approaching sustainability through a systems lens allows these relationships to be examined collectively rather than seeing them as isolated challenges.

The following section synthesizes insights from primary research. The analysis focuses on how risks, value, and decision-making are distributed across the coffee system and how these dynamics influence the capacity of producers to maintain viable farming systems. First, the structure of the coffee system is mapped in order to identify key actors, flows, and relationships. Second, structural risks affecting coffee production are examined. And finally, patterns and misalignments within the system are analyzed to understand how sustainability challenges emerge.

Mapping the Coffee Supply Chain

Coffee is often represented through a linear supply chain that traces the movement of the product from farm to consumer. In its simplest form, this sequence includes producers, exporters, importers, roasters, retailers, and consumers, as represented in Figure 9.

While this representation helps explain how coffee moves through the market, it does not fully capture the network of relationships and institutional actors that influence how coffee is produced, traded, and valued.

Figure 9: Linear representation of the coffee supply chain

Relational Coffee System Map

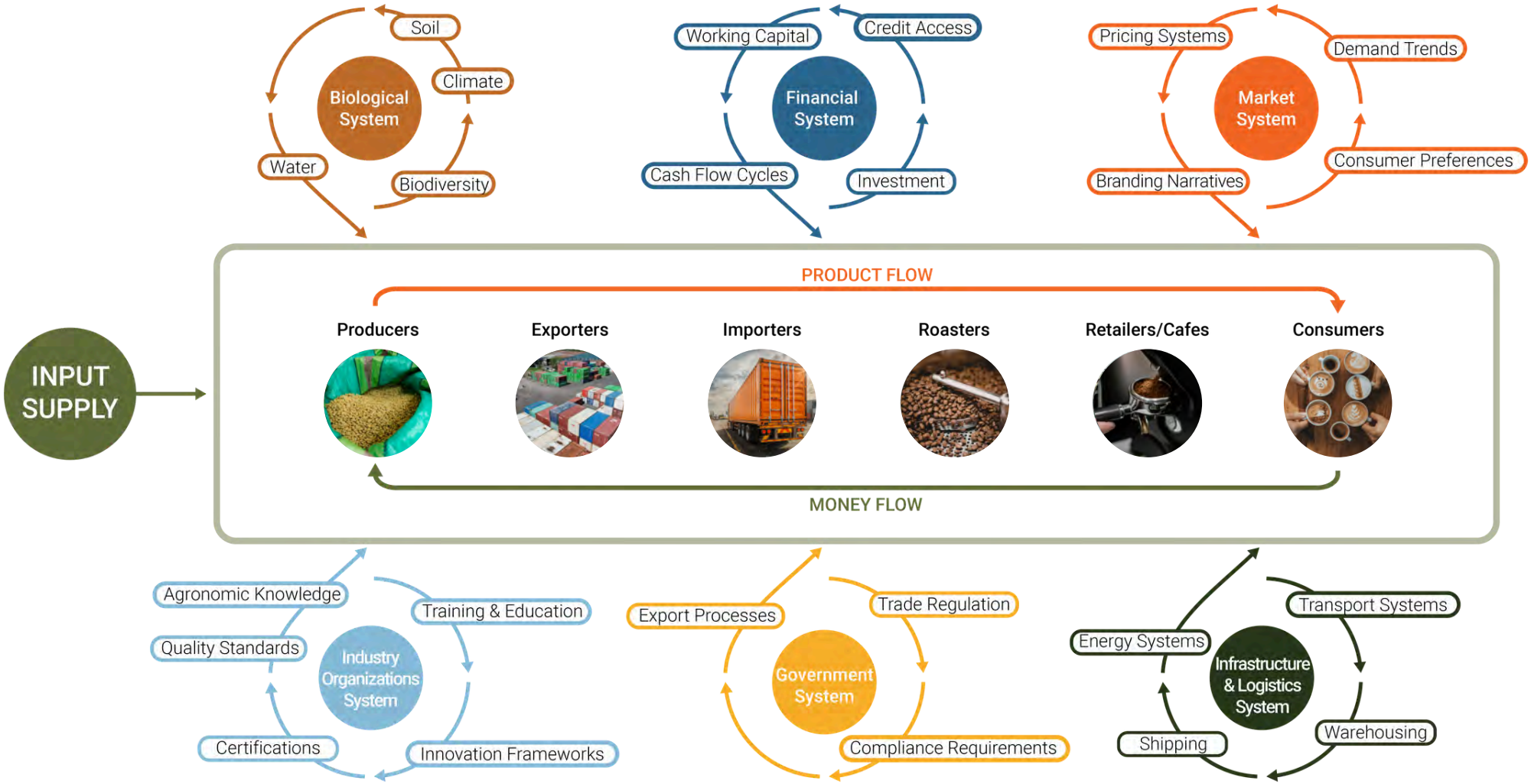


Figure 10: Relational map of the coffee system showing interconnected supply chain actors, supporting systems, and flows of product and value

Understanding the Supply Chain Beyond a Linear Model

This research approaches the coffee supply chain as a relational system, as seen in Figure 10 & 11, where actors are embedded within and influenced by interconnected systems rather than operating in isolation. At the centre of the system is the supply chain itself, structured through two primary flows. The product flow represents the physical movement of coffee from production to consumption. In parallel, the money flow moves in the opposite direction, as value generated at the point of consumption circulates back through the system, passing across multiple actors. Surrounding this central chain are several interdependent systems that shape how the supply chain operates.

The biological system underpins coffee production, encompassing climate, soil conditions, water availability, and biodiversity. These ecological factors directly influence productivity, quality, and long-term viability. The financial system structures how capital moves across actors. Access to credit, working capital and investment determines the ability of producers, exporters, and other actors to operate, manage risk and invest in improvements. The market system influences how coffee is valued and differentiated. This includes pricing mechanisms, including the C-market and specialty markets, and consumer preferences such as demand trends and branding narratives.

The government system shapes the regulatory and operational environment through export processes, trade regulations, and compliance requirements. These frameworks influence how coffee moves across borders and how actors participate in international markets. The industry organization system contributes knowledge, standards, and coordination mechanisms. Through certifications, quality standards, training, and innovation frameworks, these actors influence how quality is defined, communicated and rewarded across the system.

The infrastructure and logistics system enable the physical movement and preservation of coffee. Transport systems, warehousing, shipping networks, and energy systems support the continuity of the supply chain. These elements shape costs, timing, and quality outcomes. And finally, the input system provides the foundational resources required for production, including agricultural inputs, tools, and knowledge. These inputs directly influence farm-level practices and productivity. Together, these interconnected systems illustrate that coffee is not a linear chain but a multi-layered system of flows, dependencies, and influences. This relational perspective provides the foundation for identifying where tensions emerge.

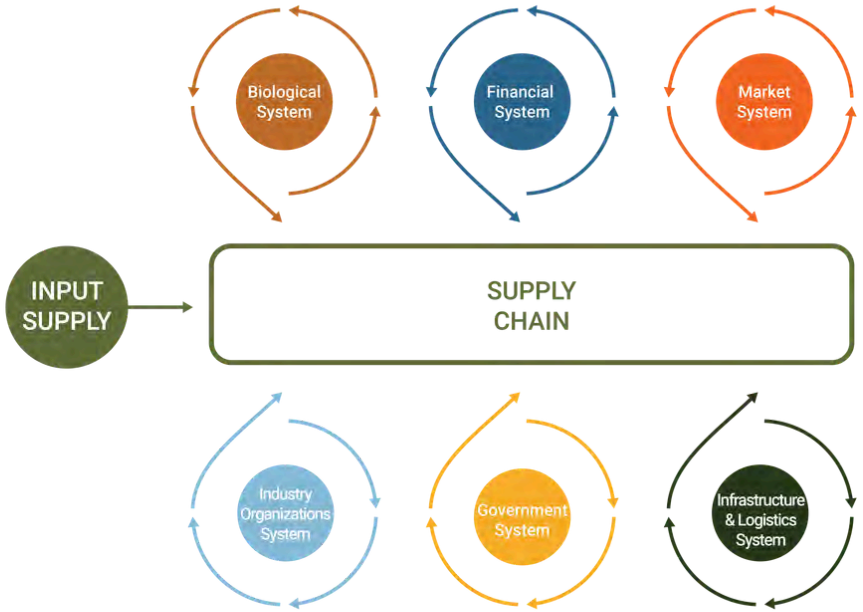


Figure 11: Summary of Relational Coffee System

Structural Risks in Coffee Systems

Once the coffee system is understood as a network of interconnected stakeholders and flows, it becomes possible to identify possible structural risks embedded within it. The risks identified are distributed across multiple points of interaction within the supply chain, including: ecological conditions, financial systems, market dynamics, institutional arrangements, and social structures.

These risks have the potential to influence and shape how actors participate in the coffee industry over time. The scope and categorizations of these risks are informed by both primary and secondary research. Insights from interviews with actors in the coffee supply chain provide a grounded understanding of how risks are experienced.

	Origin (Producers)	Trade (Importers/Exporters)	Consumption End (Roasters/Retail/ Cafés)	Institutions	System-wide
Environmental & Biological Risks	Yield loss / pests	Lower volume / quality shifts	Supply instability / price pressure	Adaptation support needs	Long-term production risk
Financial & Investment Risks	High costs / delayed income	Working Capital	Margin pressure / higher costs	Credit and investment gaps	Lower reinvestment capacity
Market & Trade Risks	Price volatility / weak premiums	Contract and margin risk	Price increases / demand sensitivity	Tariffs / export conditions	Geopolotical conflict / uncertainty
Coordination & Institutional Risks	Uneven support	Misalignment	Quality inconsistency / reactive sourcing	Fragmentation / weak continuity	Slower system adaptation
Social & Generational Risks	Labour shortages / youth exit	Reduced skilled capacity	Changing preferences / demand shifts	Rural retention needs	Future supply continuity at risk

Low Exposure **Moderate Exposure** **High Exposure** **Critical Exposure**

Table 3: Distribution of structural risks across key layers of the coffee system

Environmental and Biological Risks

The environmental and biological risks that emerge at the production level are directly tied to the ecological conditions required for coffee cultivation. These include climate variability, changes in rainfall patterns, temperature increases, soil degradation, and the spread of pests and diseases. Such conditions affect both yield and quality, shaping the outcomes of production before coffee enters the market.

For producers, this translates into increased uncertainty in both production planning and income generation. A single season of irregular weather patterns can significantly reduce output, while consecutive years of environmental stress can weaken coffee plants and reduce long-term productivity. Biological risks such as pests and diseases further intensify this vulnerability, since managing these risks often requires increased use of inputs, such as fertilizers and pest control measures. This raises production costs and places additional pressure on already constrained financial resources. In some cases, producers may be forced to renovate crops or to switch to other varieties, processes that require time, capital, and technical support.

Beyond the farm level, environmental and biological risks have a cascading effect across the supply chain. Reduced yields and inconsistent quality can limit the volume of coffee available for export, affecting the ability to fulfill contracts and maintain relationships with buyers. For roasters and retailers, these fluctuations may result in instability, changes in sourcing strategies, or adjustments in pricing and product offerings. To better illustrate how these environmental and biological risks take form within coffee production systems, Figure 12 organizes the main pressures identified in this research into three interconnected categories: climate pressures, soil degradation, and unsustainable agricultural practices.

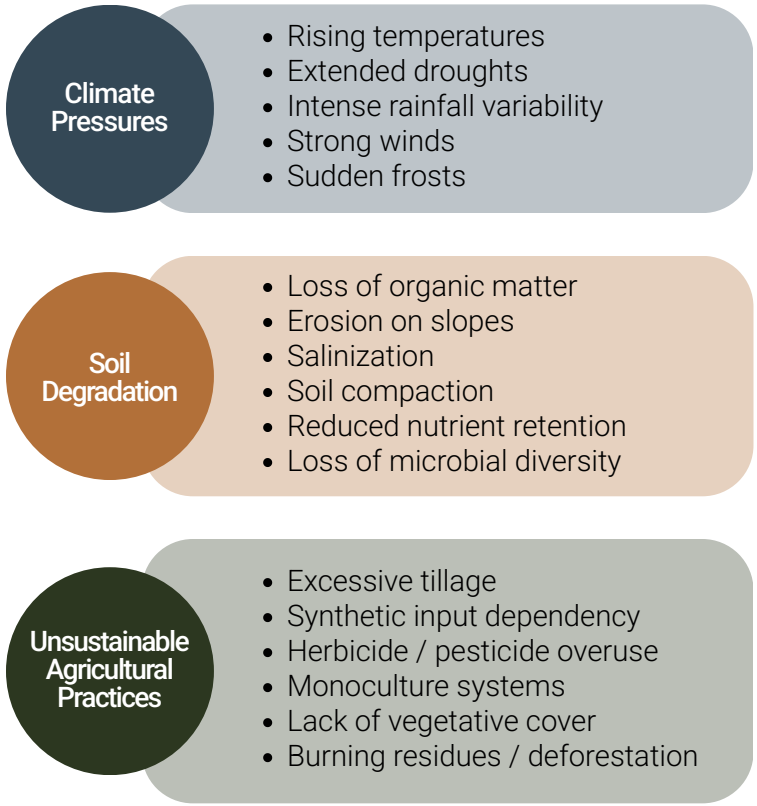


Figure 12: Impacts on climate pressure, soil degradation, and unsustainable agricultural practices

Financial and Investment Risks

Financial and investment risks are embedded in the structure of the coffee system and shape how actors are able to participate, operate, and invest over time. These risks are closely linked to the timing of costs and revenues, access to credit and working capital, and exposure to global financial dynamics such as currency fluctuations and price volatility. At the production level, coffee farming is characterized by high upfront costs and delayed returns. Producers must invest in inputs such as fertilizers, infrastructure, seedlings, and labour throughout the production cycle. Revenues, by contrast, are typically received in stages tied to harvest and sales. This creates persistent cash flow constraints that limit producers' ability to cover household expenses, absorb shocks, or reinvest in their farms.

Beyond the farm level, working capital requirements are central to the functioning of coffee trade. Exporters must finance the purchase of coffee from producers, as well as storage and logistics, often before receiving payment from buyers. Importers and traders similarly rely on financial instruments to manage large volumes of coffee, international transactions, and delays between purchase and sale.

Market and Trade Risks

Market and trade risks emerge from the global structure of coffee markets, and the mechanisms through which coffee is priced, traded, and distributed across borders. Unlike financial risks, which are often experienced at the level of individual actors, market and trade risks are shaped by broader economic systems, geopolitical dynamics and financial markets that extend beyond the direct control of most participants in the coffee supply chain. One of the defining features of the coffee market is its connection to the C-market, where coffee is traded as a commodity through futures contracts. Prices here are influenced not only by supply and demand conditions, but also by speculative activity, financial investments, and broader macroeconomic trends. As a result, coffee prices can fluctuate significantly over short periods of time, introducing uncertainty from this volatility.

These dynamics are closely linked to processes of financialization, where coffee is treated not only as an agricultural product but also as a financial asset. Traders, hedge funds, and institutional investors participate in coffee markets through financial instruments, shaping price movements that may not directly reflect production conditions on the ground. While some coffee supply chain actors may use hedging strategies to manage exposure to price volatility, these tools are not equally accessible across the system.

Coffee exports are commonly priced and transacted in United States dollars, meaning currency movements can significantly affect returns in producing countries. When a local currency loses value relative to the dollar, exporters in some countries may become more competitive internationally because their coffee can become cheaper for foreign buyers while many domestic costs remain in local currency. For example, if producers in Brazil or Colombia receive revenue in dollars but pay labour and operating costs in reais or pesos, a lower local currency value can improve export margins or pricing flexibility. However, exchange rate movements can also create downside risk. If a local currency gains value against the dollar, export competitiveness may decline, and margins can tighten. Currency volatility can also make planning more difficult, as producers and exporters may face changing returns between the moment coffee is sold and when payments are received.

In Ecuador, however, the economy uses the United States dollar directly. This removes domestic exchange rate volatility, but it also means Ecuador cannot benefit from currency devaluation in

the same way some competing producing countries can. At the same time, Ecuador is still exposed to broader global dollar dynamics. If the dollar strengthens internationally, Ecuadorian coffee may become relatively more expensive in some markets. As a result, Ecuadorian producers may face relatively fixed local costs while competing in a global market where other origins may gain temporary pricing advantages through currency shifts.

Geopolitical dynamics further shape market and trade conditions within the coffee supply chain. Trade policies, tariffs, and international agreements influence how coffee moves across borders and how it is positioned within global markets. At the same time, geopolitical conflicts and global instability can disrupt logistic networks, increase transportation costs, and affect the availability and price of key inputs such as fuel and fertilizers. These disruptions highlight the dependence of the coffee system on global trade infrastructure and energy systems. These dynamics extend across multiple levels of the system, influencing financial conditions, institutional arrangements, and production environments simultaneously.

Coordination and Institutional Risks

Coordination and institutional risks emerge from the ways in which actors within the coffee system interact through governance structures, support mechanisms, and organizational arrangements. These risks are tied to the alignment and continuity of relationships between actors operating across different levels of the system. As explored throughout this research, the coffee system involves a wide range of institutional actors who contribute to different functions within the system, including technical assistance, financing, certification, market access, and policy implementation. These actors can provide important support, but they often operate across different scales, timelines, and priorities. When priorities from these actors are not aligned, coordination challenges can emerge. A central characteristic of these risks is not the absence of institutional support, but the fragmentation of that support. Multiple initiatives can lead to overlapping activities, gaps between interventions, and limited long-term follow-through.

At the production level, these dynamics can create uncertainty for producers in deciding where to allocate resources. When multiple initiatives promote different practices, standards, or market opportunities, producers may face competing expectations. This can make it difficult to prioritize investments, particularly when the outcomes of these effects are not guaranteed. For example, participation in certifications or specific quality programs may require additional resources for compliance. However, the returns associated with these investments are not always consistent or predictable.

Coordination risks also affect how knowledge and information circulate through the system. Technical guidance, market requirements, and available support do not always translate clearly across actors. Information may arrive late, through informal channels, or in ways that are difficult to apply locally. For instance, a producer may hear that a certain fermentation method is in demand, but not receive the practical training, equipment, or buyer commitment needed to implement it successfully. Likewise, exporters or roasters may seek specific quality profiles without fully understanding local production constraints such as labour availability or climate conditions.

Social and Generational Risks

Social and generational risks relate to the long-term continuity of coffee production as a livelihood, particularly in smallholder farming contexts. These risks are shaped by demographic changes, labour dynamics, and shifting social aspirations within coffee-producing communities. At the production level, coffee farming often depends on intergenerational knowledge transfer.

However, younger generations are increasingly seeking opportunities outside of agriculture, influenced by factors such as income instability, physical labour demands, and limited access to services. As a result, fewer young people are choosing to remain in or start in coffee production.

This creates a risk for the continuity of knowledge, as farming practices, processing techniques and local environmental understanding are traditionally transmitted through lived experience and community relationships. Primary research conducted for this study reflects these dynamics, with participants noting concerns about the future of coffee farming if younger generations are not engaged. At the same time, some producers highlighted emerging efforts to innovate and reframe coffee production as a more attractive and viable activity, particularly through quality differentiation, experimentation, and new forms of value creation.

For example, quality-focused practices such as improved processing methods, fermentation techniques, or separated microlots can help coffee reach specialty markets with stronger recognition. Others pointed to opportunities in direct relationships with buyers, tourism experiences, and sharing a deeper connection to the land through hospitality and origin stories, which can create additional income while strengthening local identity. Learning barista skills, storytelling, and digital tools for marketing or sales may also help make the coffee industry feel more innovative, creative, and appealing to younger generations.

Labour availability also presents a structural challenge. Harvesting coffee is labour-intensive and highly time-sensitive. If cherries are not picked at the right moment, quality and yield can decline. Producers may face difficulties securing enough labour during peak harvest periods, especially when local workers have alternative employment options, or migration reduces the available workforce. For example, a farm may have a strong crop year but still lose value if labour shortages delay harvesting.

At the consumption level, social risks are shaped by changing consumer preferences. In periods of economic instability, consumers may become more price-sensitive, reducing demand for higher-priced specialty coffee products or shifting towards more affordable alternatives. This introduces uncertainty for roasters, retailers, and ultimately producers who depend on specialty markets for differentiated pricing and sustainable income. Additionally, consumer preferences continue to evolve in relation to convenience, sustainability narratives, and product experience.

While this can create opportunities for innovation, it also introduces risk when market expectations shift faster than the system can adapt. Producers and other actors may invest in quality improvements, certifications, or methods without guaranteed alignment with future consumer demand. These dynamics across both ends of the coffee system shape the long-term stability of the coffee supply chain and the conditions under which actors engage with the system.

Patterns and Misalignments in the Coffee System

Building on the mapping of the coffee supply chain and the structural risks identified, this section examines the broader patterns that shape how the coffee system operates over time. It looks at recurring dynamics and points of misalignment that influence how value, knowledge, risk, and innovation move across the system. Identifying these patterns helps reveal why certain tensions persist and where opportunities for change may exist.

Fragmentation of Efforts Across the System

The analysis of the coffee system reveals a high level of engagement from a diverse set of actors operating across production, trade, research, and policy. At first glance, this landscape suggests an active support structure within the coffee supply chain. However, analysis research on how these actors interact over time and across functions highlights a recurring pattern of fragmentation.

This pattern emerges not from the absence of initiatives but from the way in which efforts are distributed across multiple actors, disconnected flows, and non-continuous timelines. Institutions such as government agencies, NGOs, universities, and private sector actors contribute through programs focused on technical assistance, quality improvements, sustainability, and market access. However, these initiatives are implemented over limited timeframes, creating cycles of engagement and disengagement.

Without mechanisms for continuity or integration, the outcomes of these efforts are not always sustained or built upon over time. This introduces discontinuity within the system, where progress may occur in isolated instances but is not accumulated at a systemic level and does not always translate into a coherent or long-term pathway for development. This can create complexity in decision-making and limit the ability to strategically prioritize resources.

Several structural factors contribute to this fragmentation. Political cycles can interrupt programs when leadership or priorities change. Many initiatives also depend on external funding tied to short project timelines or changing donor interests. Market dynamics add another layer of uncertainty. Demand for certifications or specific quality attributes can rise or fall as consumer preferences shift, regulations change, new labels enter the market, or buyers move attention to different priorities. This can make it difficult for producers to know which investments will remain valuable over time.

These patterns can be understood through reinforcing loops, as seen in Figure 13, where one challenge creates conditions that generate the next challenge and repeat the cycle. For example, short-term programs often end before relationships, trust, or long-term results are established. When initiatives are interrupted, producers may be less likely to engage in future programs, reducing adoption and visible impact. Limited results can then create pressure for new short-term initiatives rather than strengthening existing ones.

In parallel, fragmented efforts often happen when organizations work independently, each with its own goals, timelines, or funding requirements. This can weaken coordination, create isolated outcomes, and lead to more separate projects instead of building on past progress. Over time, these loops can keep fragmentation in place even when many actors are working with positive intentions.

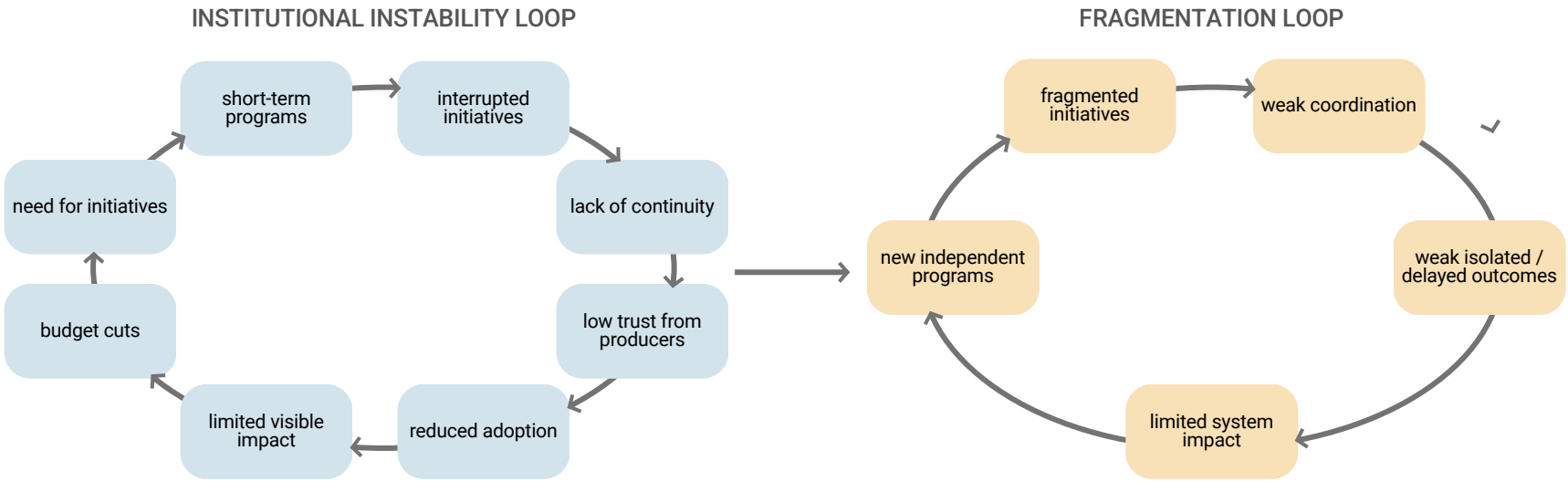


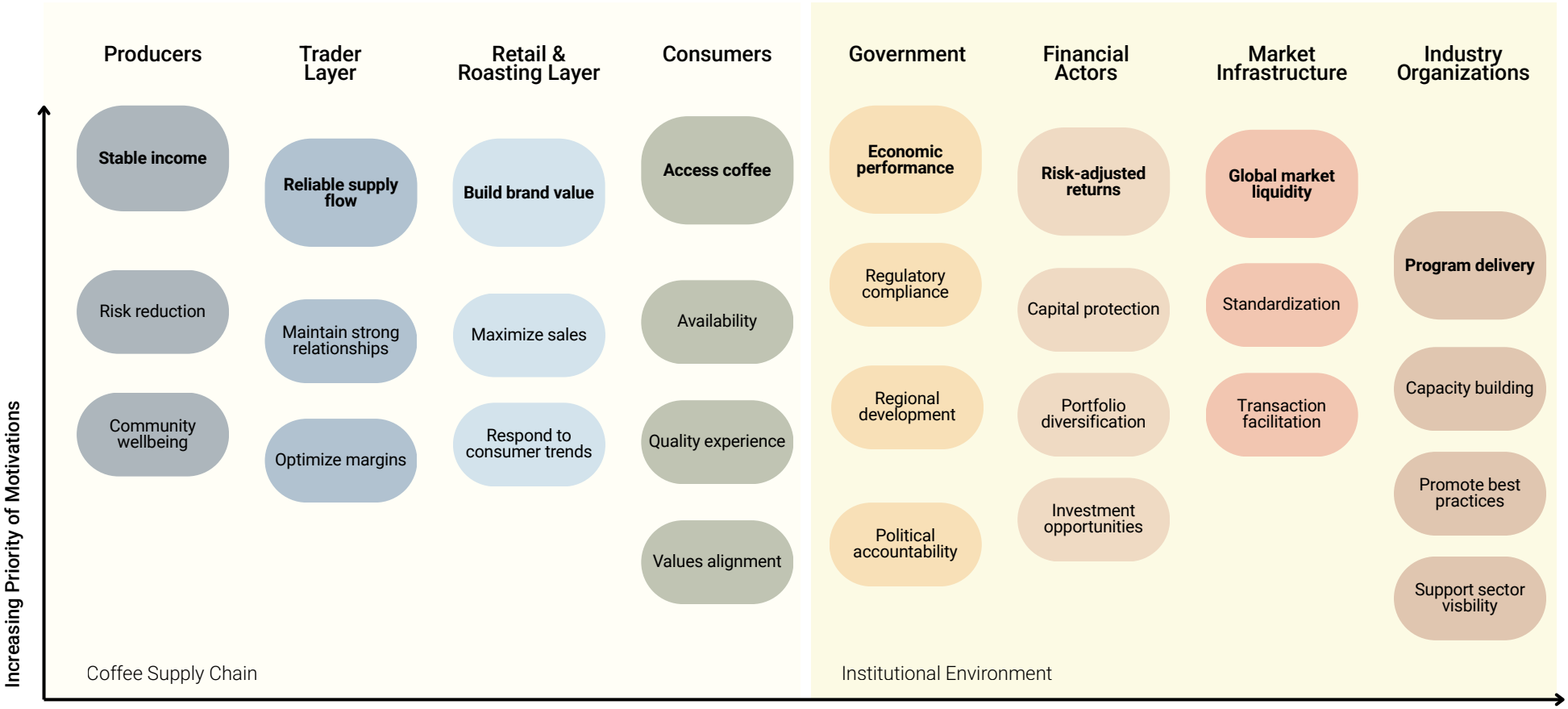
Figure 13: Reinforcing loops showing institutional instability and fragmentation

Misalignment of Incentives Between Actors

A central constraint within the coffee system lies in the misalignment of incentives across both the value chain and institutional actors. While all stakeholders participate within the system, they operate under fundamentally different priorities, risk exposures, and time horizons. Producers carry environmental and financial risk, yet have limited influence over pricing. In contrast, actors with greater structural power, such as financial institutions, governments, and market infrastructure, optimize for efficiency and short-term performance metrics. Financial actors prioritize capital protection over long-term investment, while governments often operate within political cycles that limit policy continuity.

Market infrastructure, including global pricing systems, reinforces volatility and standardization, frequently disconnecting value from production realities. Industry organizations, although positioned to support the system, often operate through fragmented interventions or focus on the consumption end of the supply chain. Together, these dynamics reinforce a system where power is concentrated in structures that are not fully aligned with the long-term needs and realities of producers, limiting the potential for coordinated change.

Stakeholder Matrix



*trader layer includes: exporters and importers
*retail and roasting layer includes: roasters, retail and cafés

Figure 14: Stakeholder motivations and influence across the coffee system.

Concentration of Innovation at the Consumption End

Innovation within the coffee system often appears more visible at the consumption end of the value chain, particularly among roasters, retailers, cafés, equipment companies, and consumer-facing brands. These actors frequently introduce new products, brewing technologies, packaging formats, café concepts, and marketing narratives to stand out in competitive markets. In contrast, innovation at the production level may receive comparatively less visibility and recognition. Producers regularly experiment with fermentation methods, varietal selection, processing techniques, regenerative practices, and adaptation strategies, yet these forms of innovation are not always consistently supported, scaled, or rewarded across the broader system.

As a result, value created through innovation may accumulate more strongly at later stages of the chain, where market visibility, consumer access, and profit margins are often higher. Meanwhile, producers, who play an important role in quality, environmental stewardship, and future supply stability, may face greater barriers to innovating despite being central to the system's long-term resilience.

To further explore this dynamic, Figure 15 was developed through a review of coffee industry awards, trade shows, industry articles, social media visibility, and observations gathered throughout the research process. The goal was to better understand which forms of innovation are most publicly recognized and celebrated within the coffee industry over time. While this is not intended to measure all innovation happening across the sector, it helps illustrate how attention and visibility may often concentrate around products, café spaces, technologies, and consumer-facing experiences, while innovation taking place at origin can remain less visible.

Figure 15 uses a Sankey diagram to visualize how recognition and visibility may flow across different stages of the coffee value chain. The diagram suggests that innovation is often more visible at the consumption end of the system, while innovation at the production level may receive comparatively less recognition. This dynamic can reinforce existing imbalances and limit how the coffee system invests in long-term resilience. When innovation becomes more visible mainly where coffee is sold rather than where it is grown, there is a risk that some of the most important challenges and opportunities at origin receive less attention and support.

Sankey Diagram of Innovation Recognition

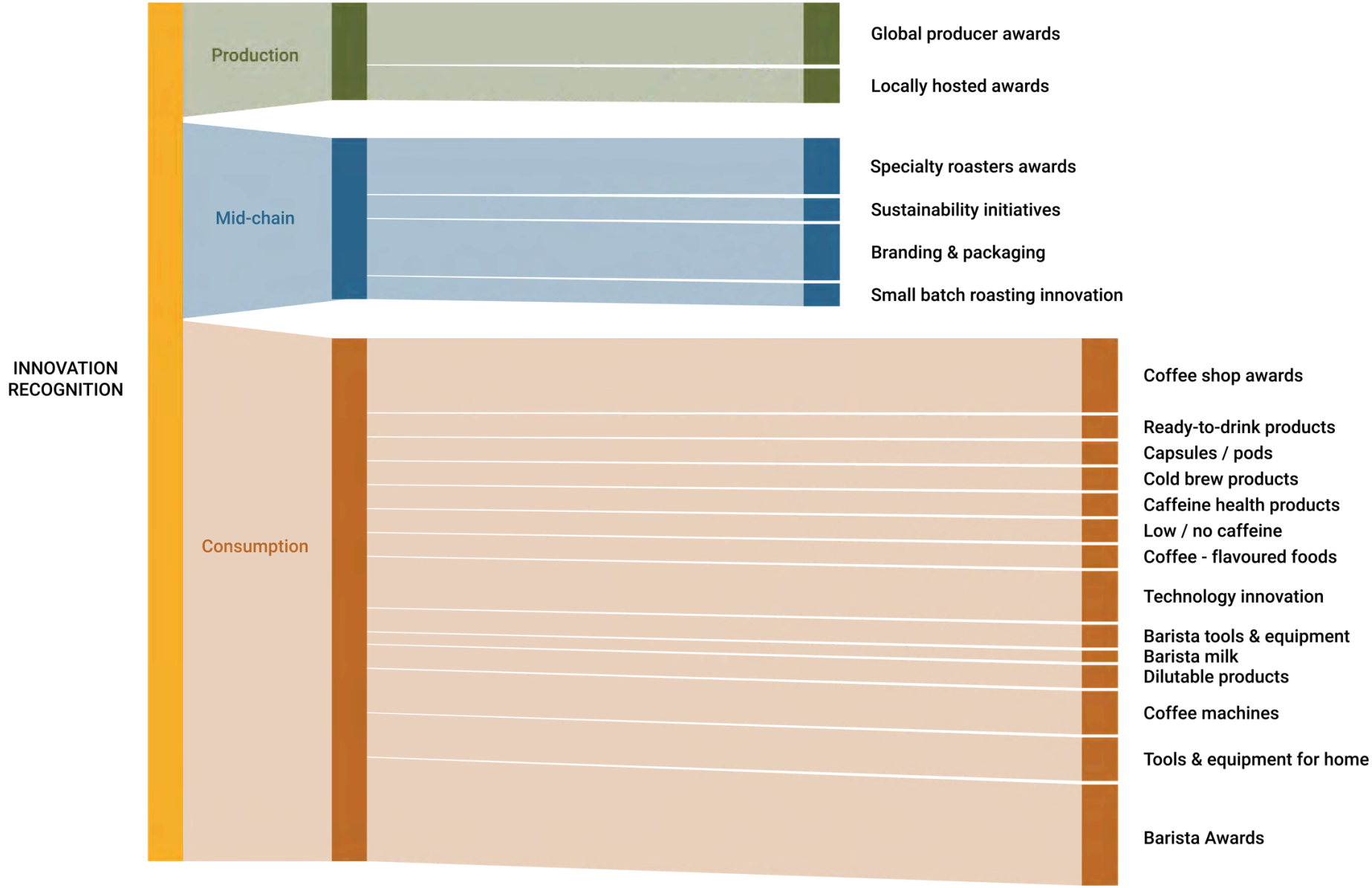


Figure 15: Distribution of innovation recognition across the coffee system

System Challenge

Asymmetry in Value Distribution

Value in the coffee system is not determined only by the physical product itself, but also by how different contributions are recognized, communicated, and rewarded. In practice, value is often easier to capture when it can be clearly seen by the market and understood by consumers. This is especially true in customer-facing activities such as branding, packaging, café experiences, product development, and storytelling, where differences can be made visible and linked to purchasing decisions. By contrast, many important contributions at the production level are harder to signal within existing market structures. These may include adapting to climate variability, improving fermentation or drying methods, maintaining soil health, preserving biodiversity, or managing quality consistently across harvests. Although these efforts can strongly influence the final cup and the long-term resilience of supply, they are often less visible to consumers and more difficult to translate into immediate market premiums.

This creates a disconnect between where value is generated and where it is captured. Over time, this dynamic shapes how resources and attention are allocated, reinforcing investment in areas where value is more legible, while constraining the development of less visible, but equally critical parts of the system. This helps reinforce existing imbalances and can limit the long-term sustainability of the coffee system as a whole.

Building on the system mapping, risk analysis and identification of structural patterns, coffee sustainability can be understood as a systemic coordination challenge. Many actors across the coffee system are working towards the development of the industry. However, these efforts often operate under different priorities, timelines, and definitions of success, making it difficult for progress to build consistently across the system.

A central challenge is that different parts of the system move at different speeds. Coffee production follows biological timelines. A coffee tree may take several years before producing harvestable cherries, and even after reaching maturity, production depends on seasonal harvest cycles that occur only at certain times of the year. This means income is often concentrated around harvest periods, while costs such as labour, maintenance, and farm inputs continue throughout the year. In addition, investments in soil health, farm renovation, or new varieties often take time before results are seen. By contrast, financial markets can react in days or even hours through changing prices, speculation, or currency movements. Consumer demand can also shift quickly as trends change around flavour preferences, convenience, branding, or sustainability narratives. Institutional actors such as governments, NGOs, and development programs may operate through election cycles, funding windows, or short project timelines. In practice, this means producers are often making long-term decisions within a system that rewards short-term responses.

Beyond these temporal misalignments, the system is further constrained by fragmentation without continuity. While a wide range of actors contribute through technical assistance, certifications, sustainability programs, and innovation, these efforts are often short-term, uncoordinated and non-cumulative. As a result, progress may happen in isolated pockets without becoming embedded across the wider system. A producer

community may receive training for one year, but not the follow-up financing, market access, or long-term support needed to sustain those gains.

At the same time, there is a disconnect between where value is created and where it is recognized. This dynamic is compounded by an innovation-risk inversion: innovation is concentrated among downstream actors with greater resources and stability, while risk remains concentrated among producers with limited resources. Roasters, brands, retailers, and equipment companies often have greater access to capital, technology, and direct customer markets, allowing them to experiment with new products, formats, and experiences under more stable conditions. Meanwhile, producers often face the greatest exposure to climate variability, pests, labour shortages, and price volatility, while also carrying the costs of long-term farm investment. In practice, the actors carrying the highest levels of risk are often those with the fewest resources to innovate, while those with greater capacity to innovate face comparatively lower production risk.

System Challenge Statement

Coffee sustainability is often limited by misalignment across the system. Producers carry much of the risk, while more value is often captured downstream through the chain. At the same time, coordination between actors is frequently fragmented. This creates recurring vulnerability at origin, weakens long-term resilience, distributes rewards unevenly, and makes lasting system-wide change harder to achieve.

7. POSSIBLE FUTURES

Possible Futures Introduction

Building on the risks and structural misalignments identified, this section explores potential leverage points for improving how the coffee system functions over time. These directions emerge from both the broader system analysis and primary research, highlighting opportunities to reshape how value is created, recognized, communicated, shared, and sustained across the supply chain. A key insight from this study is that the coffee system does not lack effort or participation. Many actors are already active through farming, trade, research, policy, sustainability programs, and market initiatives. However, the impact of these efforts is often reduced by fragmentation, limited capacity, weak communication flows, and inconsistent continuity. In practice, valuable work may happen, but it does not always connect, build on previous progress, or become visible in ways that generate lasting momentum.

This suggests that meaningful transformation may depend less on creating entirely new initiatives and more on improving how existing efforts are connected, sequenced, communicated, and supported over time. Stronger coordination, clearer pathways between actors, and sustained follow-through can help individual actions accumulate into broader and more durable change. It also points toward opportunities to better communicate value at origin, strengthen relationships between producers and markets, expand recognition of local innovation, and explore complementary forms of value creation linked to knowledge, place, and experience.

Drivers of Change

Several key drivers of change are shaping how the coffee system is evolving. One of the most important shifts is the growing move toward relationship-based and more transparent supply chains. As price volatility increases and regulations requirements become more strict, both producers and buyers are recognizing the need for more stable, long-term relationships. This represents a shift away from one-time transactions toward ongoing partnerships built on trust, communication and understanding.

At the same time, there is a rising importance of origin visibility and authenticity as sources of value. Consumers and buyers are increasingly interested in where coffee comes from, how it is produced, and who is behind it. This creates an opportunity to make visible the work, knowledge, and innovation happening at origin. Stronger storytelling, traceability, and direct connection between producers and markets can help translate origin contributions into greater recognition and potential value.

Environmental change is also playing a major role. To battle with climate variability and ecological pressures, producers are adopting practices such as agroforestry and regenerative agriculture. These approaches not only respond to environmental risks but also create new forms of value links to sustainability, biodiversity, and long-term land stewardship.

In response to financial uncertainty, there is a growing interest in diversifying income sources and activities. Producers are exploring pathways beyond the sale of green coffee alone, including tourism, local roasting, circular economy by-products, hospitality, educational visits, and direct-to-consumer sales. Experimentation is also increasingly emerging at origin through new processing methods, microbiology-informed fermentation, new varieties, and overall quality improvement. Together, these shifts suggest that the future of coffee may depend not only on producing coffee differently but on expanding how value is created around it.

STEEPV Analysis

Social	Technological	Economic	Environmental	Political / Institutional	Values

• Growing interest in collaboration and shared learning among producers
• Emerging openness to new roles beyond production (tourism, direct engagement)
• Increasing interest from roasters and consumers to visit origin
	• Increasing experimentation with fermentation and microbiology in processing
	• Emergence of labs and technical experimentation at origin
	• Use of blockchain and digital traceability systems
	• Platforms enabling direct connection between buyers and producers
		• Increasing importance of long-term relationships over spot buying (available now)
		• Exploration of alternative financing mechanisms (e.g. carbon credits)
		• Increase interest in circular economy models
			• Increasing adoption of agroforestry and regenerative practices
			• Focus on soil health, biodiversity and water efficiency
			• Use of biochar, compost and biological inputs
			• Growing access to regenerative agriculture education
				• EUDR regulation requiring geolocation traceability
				• Growing presence of producer-focused events (e.g., PRF in origin countries)
				• Trade agreements (e.g., China–Ecuador) improving export access
					• Strong demand for authenticity
					• Shift in Gen Z consumption:
					  ◦ personalization
					  ◦ health-oriented beverages
					  ◦ lifestyle alignment
					• Increasing importance of transparency, storytelling and ethical sourcing

Table 4: STEEPV analysis of opportunity signals

Desired Futures

A desirable future for the coffee system is one with better alignment across actors, incentives, and timelines. In this future, sustainability is not only about better farming practices, but about creating a system where risk, value, and decision-making are shared more fairly across the supply chain. Figure 16 shows one possible pathway toward this future. At the centre are three key conditions: better coordination, stronger recognition of value, and greater continuity over time. These conditions can lead to important first steps such as better communication, clearer market signals, stronger relationships, shared learning, more visible origin value, and more consistent support.

As these conditions strengthen, wider benefits can emerge across the system. Better communication and relationships can build trust, longer-term partnerships, and more stable supply chains. Clearer market signals can improve planning and make income more predictable. Greater recognition of origin value can help attract funding, infrastructure improvements, and a stronger local identity. Shared learning can improve quality and encourage innovation. More consistent support can create new jobs, increase youth involvement, strengthen community wellbeing, and support environmental improvements such as healthier soils and biodiversity.

In this future, value created at origin is more consistently recognized through quality, innovation, knowledge, and land stewardship. Producers are better able to plan, invest, and participate with confidence. At the same time, efforts across the system are less fragmented and more able to build on one another. Rather than relying on short-term interventions, the coffee system becomes more stable, more resilient, and better prepared for future environmental, market, and social change.

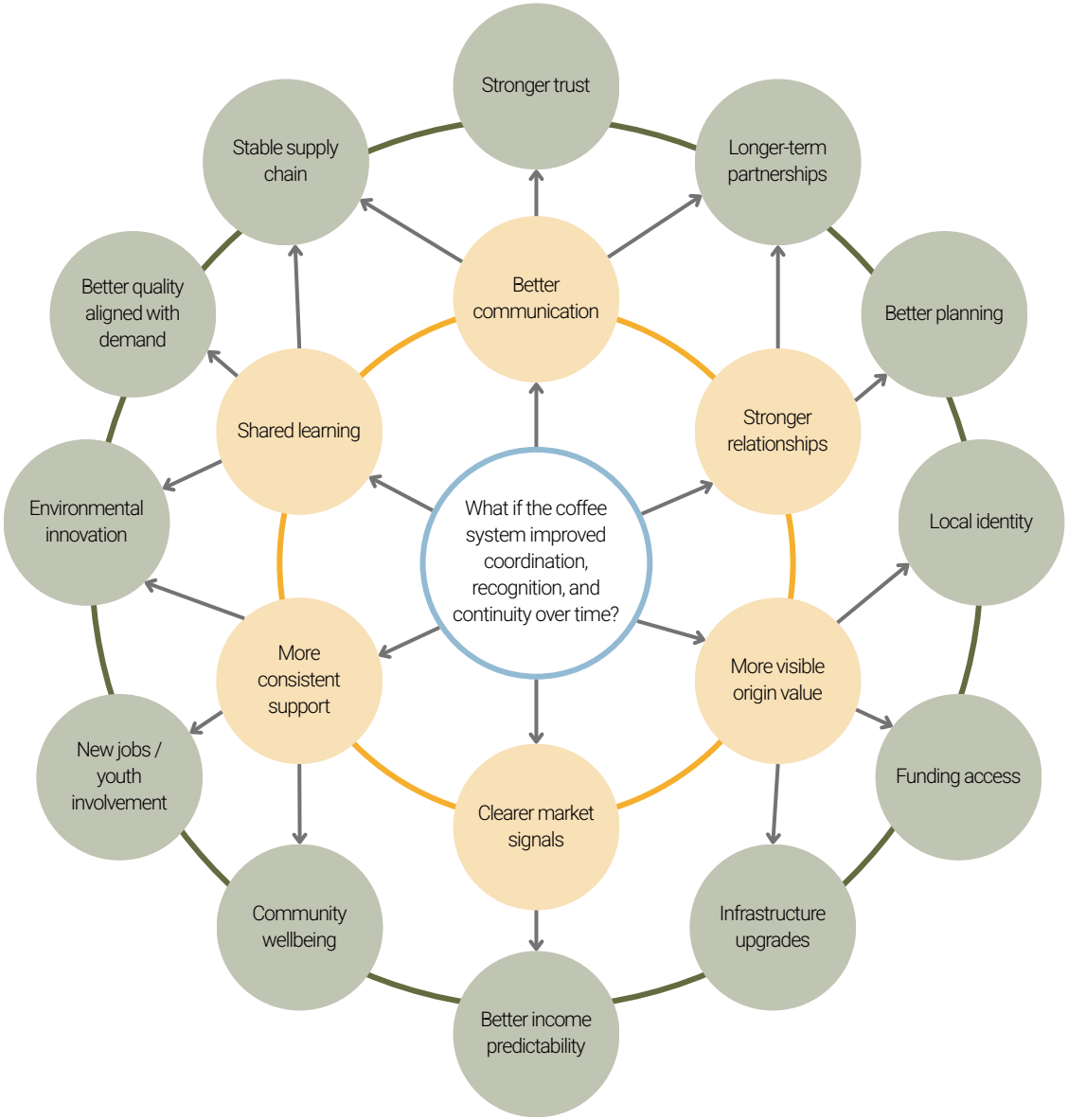


Figure 16:
Futures Wheel exploring desirable futures in a more coordinated, connected, and aligned system

Leverage Points

Building on the risks, patterns, and structural misalignments identified throughout this research, the following leverage points are explored as strategic areas where focused interventions could influence broader system dynamics over time. Rather than treating sustainability as a single solution, this approach recognizes that meaningful change often emerges through targeted shifts that improve how the system coordinates, recognizes value, and supports continuity.

To structure these pathways, a Theory of Change framework is used. This framework helps translate leverage points into practical change processes by showing how actions in the present may contribute to longer-term outcomes. It provides a logical pathway for how change could occur under supportive conditions.

Figure 17: Theory of Change Framework

Inputs

The resources, relationships, knowledge, tools, or conditions needed to begin action. These may include funding, technical expertise, communication channels, trusted partnerships, market access, or community capabilities.

Activities

The specific actions, programs, or practices carried out using those inputs. Examples may include training, information sharing, collaborative planning, feedback systems, regenerative farming practices, direct market engagement, or new partnership models.

Outcomes

The changes that result from these activities. Outcomes often respond directly to identified risks, such as better planning, stronger trust, improved quality signals, reduced uncertainty, increased visibility, or more stable relationships.

Impact

The broader effects are created when outcomes are sustained over time. Impacts may include stronger local economies, greater resilience to climate and price shocks, more balanced value distribution, healthier ecosystems, and stronger participation across generations.

Mission (Shared Across All Leverage Points)

While each leverage point follows a different pathway, they contribute to a common mission. In this research, that shared mission is to help align the coffee system so that risk, value, and decision-making are more evenly distributed across the supply chain. This means building a system that better recognizes contributions at origin, supports longer-term relationships, reduces fragmentation, and creates the conditions for lasting sustainability.

Recognizing Value Created at Origin

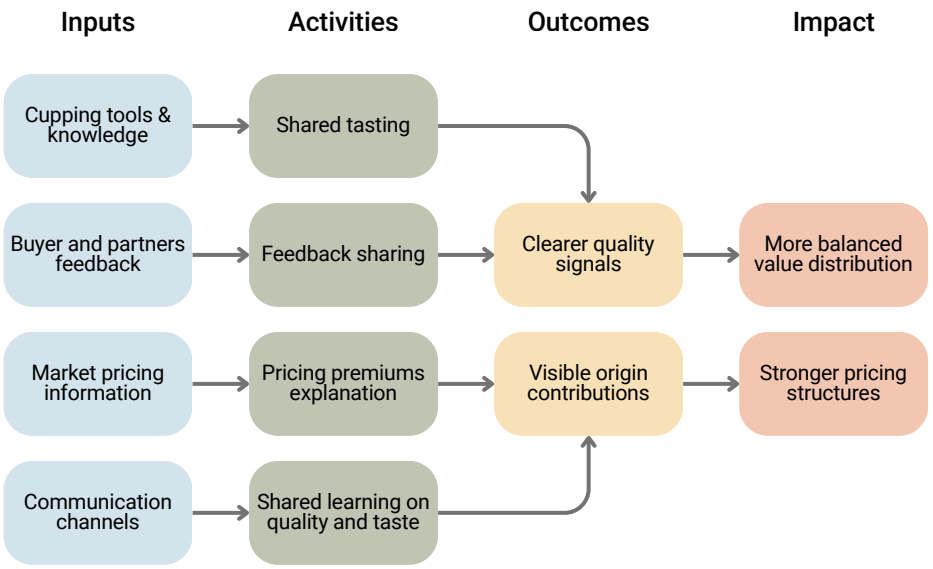


Figure 18: Theory of change framework for recognizing value created at origin leverage point

A key leverage point within the coffee system is improving how value created at origin is recognized and rewarded. Decisions related to harvesting, processing, drying, experimentation, and care for the land can have a major influence on the final product. However, these contributions are not always visible within the market, where value is often more easily captured through branding, packaging, and consumer experience.

This creates a disconnect between where value is generated and where it is rewarded. When producers do not receive clear recognition for quality improvements or innovation, the incentive to continue investing time, labour, and resources can weaken.

At the same time, buyers and consumers may remain unaware of the level of skill, knowledge, and decision-making involved at origin.

Improving value recognition means making producers' contributions easier to understand across the supply chain. This can happen through clearer feedback on coffee quality, stronger communication between producers and buyers, better links between product differentiation and pricing, and greater producer participation in how coffee is evaluated and represented. When producers better understand how their coffee is valued in the market, they are also in a stronger position to negotiate, plan improvements, and make strategic production decisions.

This leverage point benefits the wider supply chain as well. Buyers and roasters gain better access to coffees that are aligned with market demand, quality expectations, and consumer preferences.

Stronger recognition of origin contributions can also improve consistency and encourage ongoing innovation at farm level. When value becomes more visible, it can influence how decisions are made throughout the system. Producers gain clearer signals on what is being rewarded, buyers can build stronger sourcing relationships, and consumers can better appreciate the people and practices behind the product. Over time, stronger recognition of origin contributions can support more balanced value distribution, greater motivation for innovation, and a coffee system that better rewards quality where it begins.

Strengthening Anticipatory Coordination

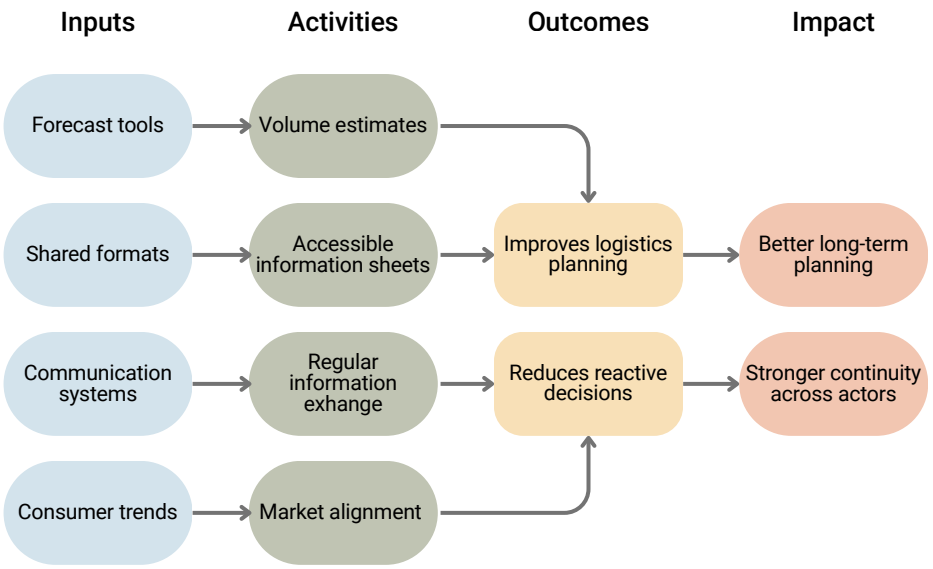


Figure 19: Theory of change framework for strengthening anticipatory coordination leverage point

Another leverage point is improving how actors coordinate decisions over time by shifting from reactive responses toward more anticipatory forms of coordination. Coffee supply chains often operate under uncertainty, where harvest timing, available volumes, quality outcomes, logistics, and market demand can change quickly. While uncertainty cannot be eliminated, many disruptions are intensified when information arrives too late or does not move clearly across the system.

Producers may not have timely visibility into buyer expectations or market trends, while exporters, importers, and roasters may have limited early insight into expected harvest volumes, varieties, or processing plans. As a result, decisions are often made reactively, creating rushed logistics and missed opportunities. Strengthening anticipatory coordination means making useful information easier to share early, clearly, and consistently across the supply chain. This can happen through harvest forecasts, estimated volumes, shared planning formats, regular communication routines, and clearer exchange of market preferences or quality needs. Even approximate early signals can help actors prepare in advance rather than wait for certainty.

An important way to support this leverage point is through longer-term partnerships between producers and buyers that maintain active communication rhythms throughout the year. Rather than engaging only at the moment of purchase, ongoing relationships create space to share updates, adjust expectations, and plan collaboratively. When disruptions occur, such as weather delays, lower yields, shipping issues, market shifts, or geopolitical conflicts, actors are better positioned to work together on solutions rather than respond in isolation.

When producers have better visibility into likely demand, quality preferences, or timing needs, they are in a stronger position to plan labour, processing, and sales strategies. In turn, buyers and downstream actors can better organize purchasing schedules, logistics, inventory, and product launches. This creates benefits across the wider system by reducing surprises and helping coffee move more smoothly from origin to market.

When coordination becomes more anticipatory, it can improve how decisions are made throughout the system. Producers gain clearer planning signals, traders and buyers reduce reactive adjustments, and roasters can source with greater confidence. Over time, stronger anticipatory coordination can support better long-term planning, stronger continuity across actors, more stable supply chains, and a coffee system that is better prepared for change.

Stabilizing Commercial Relationships

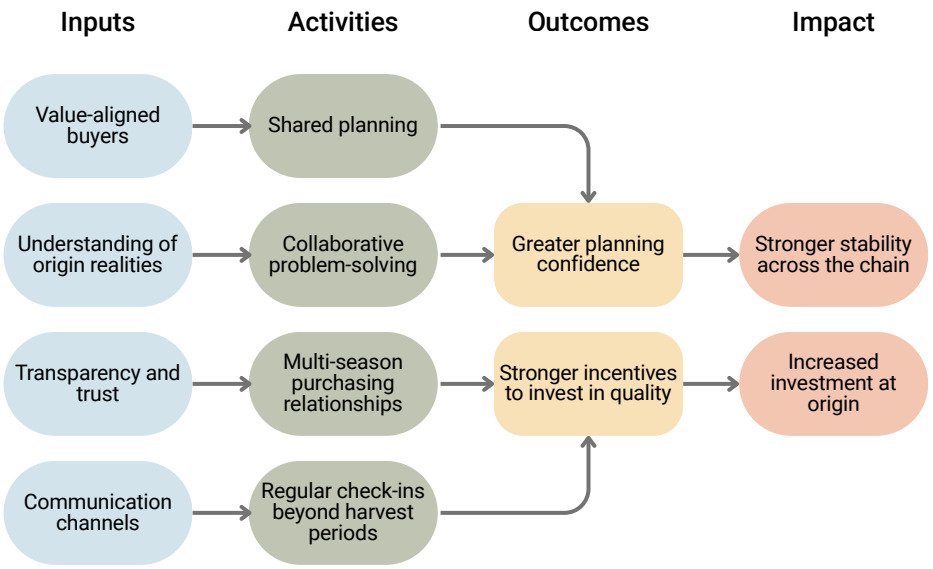


Figure 20: Theory of change framework for recognizing stabilizing commercial relationships leverage point

Another area of focus is the dynamics of commercial relationships between producers and buyers. Many of these relationships are centred on short-term transactions, where purchasing decisions are made season by season with limited long-term commitment. While this model can function operationally, it often increases uncertainty for both producers and buyers, making it harder to plan, invest, and build resilience over time.

Primary research suggests that instability is not only caused by price volatility, but by the absence of predictable relationships. When producers do not know whether demand will continue beyond one harvest, long-term decisions become more difficult. Investments in farm renovation, quality improvements, infrastructure, labour retention, or new processing methods may be delayed because future returns are uncertain. In the same way, buyers may face inconsistent supply, shifting quality, or the repeated cost of rebuilding sourcing relationships each cycle.

Stabilizing commercial relationships means creating longer-lasting partnerships where trust and continuity hold value alongside price. This can include repeat purchasing over multiple harvests, clearer long-term expectations, transparent conversations about quality and pricing, and commitments that reward consistency over time. Instead of resetting the relationship each season, both sides build familiarity and confidence through repeated engagement.

When producers know that strong performance can lead to ongoing business, they are more likely to invest in improvements such as better processing, staff training, infrastructure, or differentiated lots. These investments often require time and capital, and become more viable when future market access feels more secure. In turn, buyers gain more consistent supply, stronger traceability, and coffees that evolve positively through continued collaboration.

Longer-term commercial relationships can also create greater stability across the supply chain. Producers are less exposed to constantly searching for new buyers, while buyers reduce the costs and uncertainty of replacing trusted suppliers. This continuity can strengthen margins, improve consistency, and support better outcomes for both sides. Over time, stronger commercial relationships can increase investment at origin, reinforce quality incentives, and create more stable supply chains. Rather than relying only on short-term transactions, the system becomes supported by partnerships that generate confidence, continuity, and shared long-term value.

Reducing the Concentration of Environmental Risk at Origin

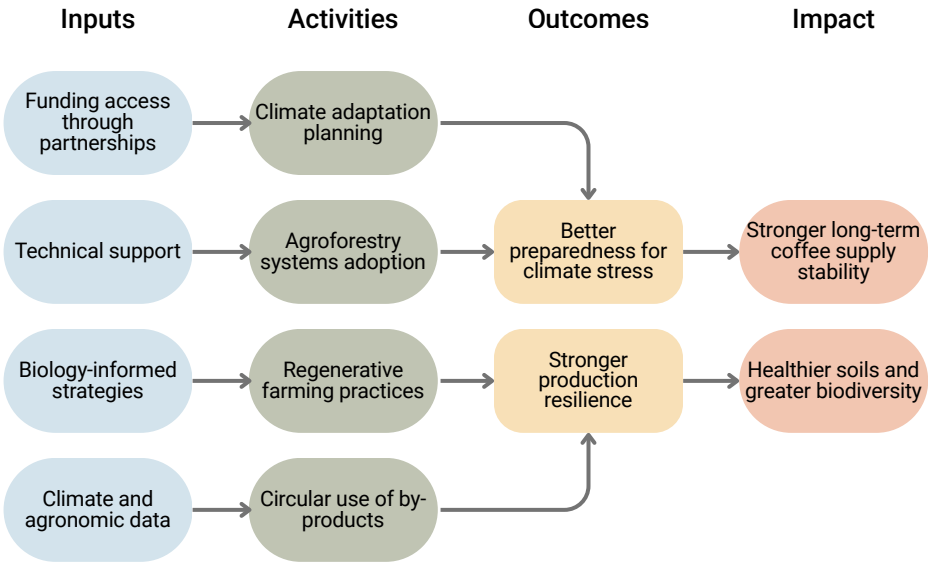


Figure 21: Theory of change framework for reducing concentration of environmental risk at origin leverage point

Environmental risk within the coffee system is often concentrated at origin, even though the benefits of resilience are shared across the wider supply chain. Producers are typically the first to absorb the effects of climate variability, changing rainfall patterns, pests, disease pressure, and soil degradation. At the same time, they are often expected to carry the cost of adaptation through farm investments, new practices, and ongoing uncertainty.

This creates a structural imbalance. While buyers, roasters, and consumers all depend on reliable coffee supply and stable quality, the responsibility for protecting that supply frequently remains with producers. When adaptation is treated only as a farm-level burden, progress can be slow, especially where access to finance, technical support, or long-term security is limited.

Reducing the concentration of environmental risk means shifting resilience from an individual responsibility to a shared system priority. This can include better access to funding, technical guidance, climate and agronomic information, and partnerships that support change over multiple production cycles. It also includes recognizing that environmental adaptation often requires time, experimentation, and investment before results are visible.

Examples include regenerative farming practices that improve soil health, agroforestry systems that increase shade and biodiversity, circular use of by-products, and climate adaptation planning around water use or changing harvest conditions. These practices can strengthen farms while also creating broader benefits for the supply chain through more stable yields, stronger quality consistency, and long-term supply security.

Recognition is also important within this leverage point. Many producers are already innovating through environmental practices and adaptive strategies, yet these efforts are not always rewarded through stronger prices, visibility, or commercial opportunity. When regenerative and climate-smart practices are recognized as part of coffee's value proposition, they become easier to sustain and scale.

Over time, reducing the concentration of environmental risk at origin can support healthier soils, greater biodiversity, stronger production resilience, and a more stable long-term coffee supply. Rather than placing adaptation mainly on producers, the system becomes stronger when resilience is built and supported collectively.

Creating More Direct Points of Interaction with End Markets

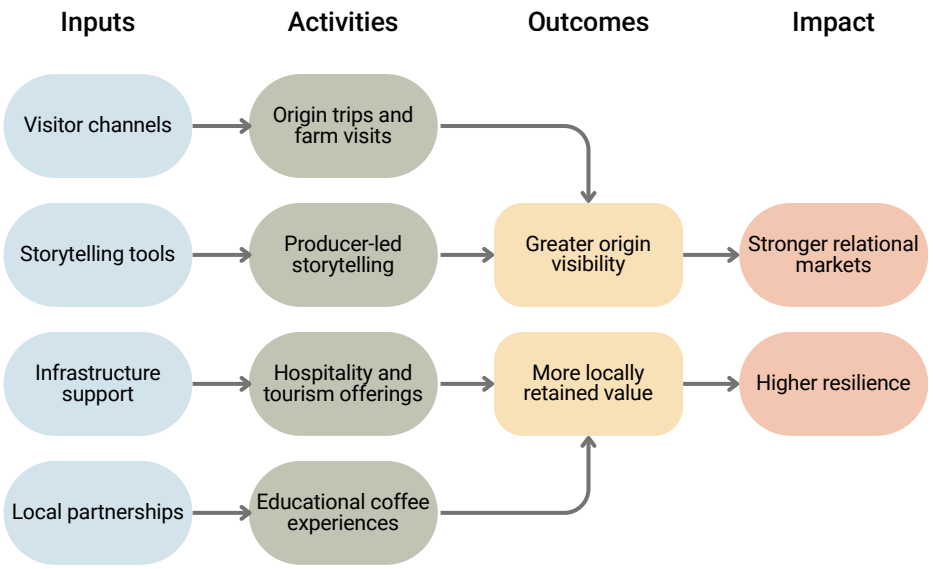


Figure 22: Theory of change framework for creating more direct points of interaction with end markets leverage point

The distance between coffee origin and final consumption often contributes to uneven value distribution. Producers carry much of the work and risk involved in growing coffee, yet consumers usually experience the product far from the place where it was created. This distance can make origin less visible, while much of the recognition, storytelling, and innovation becomes concentrated closer to the consumer end of the supply chain.

Creating more direct points of interaction with end markets is a leverage point that helps reduce this gap. By increasing contact between producers and buyers, visitors, roasters, cafés, or consumers, coffee can be understood not only as a product, but as the result of people, knowledge, landscapes, and decisions made over time. These interactions add relational value by making origin more present in how coffee is experienced and appreciated.

One way this can happen is through origin-based experiences such as farm visits, educational trips, coffee tourism, or producer-led tastings. These experiences allow cultivation, harvesting, and processing to be understood in context, helping visitors see the environmental, technical, and social realities behind coffee production. In parallel, stronger relationships with roasters, cafés, and brands can create channels where producers are more actively represented through packaging, storytelling, menus, events, or digital media.

These interactions can also create practical benefits. Greater origin visibility can strengthen differentiation in the market, while tourism, hospitality, educational experiences, or direct collaborations can generate new income opportunities and help retain more value locally. This can support diversification beyond the sale of green coffee alone. At the same time, it is important that these relationships are built around shared values, mutual respect, and fair benefit distribution, helping avoid extractive practices.

However, more interaction does not automatically create fairness. Primary research suggests that farm visits, storytelling, or origin narratives can also become extractive when they mainly generate value for downstream actors without meaningful benefits for producers. In these cases, producers may have limited control over how their stories are used or how resulting value is shared.

For this reason, the leverage point is not only about increasing interaction, but about structuring it well. When producers have a stronger voice in how their coffee is represented, and when these exchanges are linked to clear outcomes such as better pricing, longer-term relationships, shared visibility, or local income generation, interaction can help rebalance value rather than reinforce existing asymmetries.

8. LA PAPAYA STRATEGIC DIRECTIONS

From Research Insights to Community Pathways

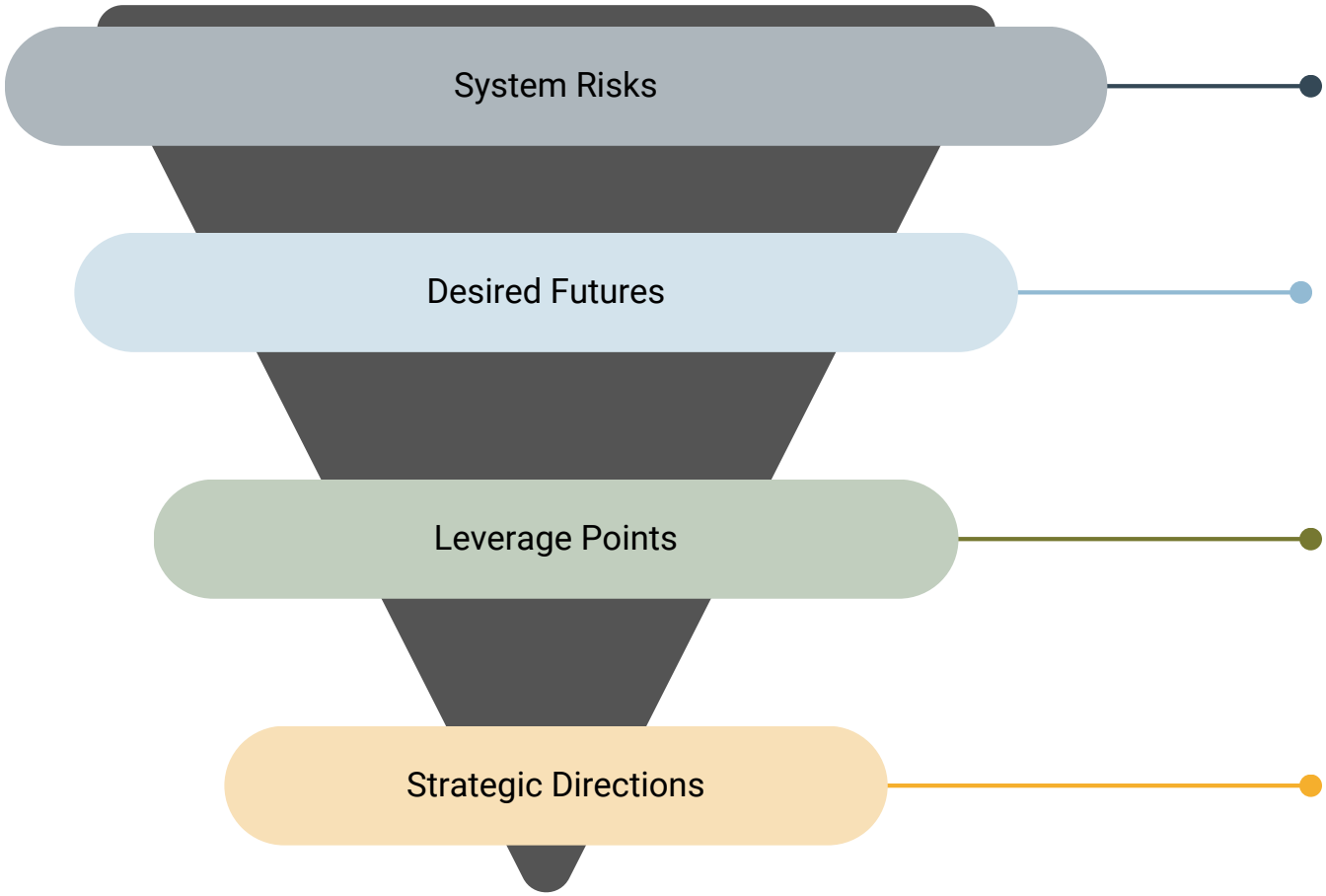
Building on the system mapping, risk analysis, stakeholder insights, desired futures, and identified leverage points, the next stage of this research focuses on practical application. The aim of this Major Research Project is not only to understand challenges within the coffee system, but to translate findings into useful pathways for action at the community level. La Papaya became an important place for this applied exploration.

The following strategic directions are presented as a portfolio of interconnected pillars designed to support La Papaya's growth over time. Rather than offering a single solution, they respond to multiple needs at once: value recognition, market engagement, collective capacity, territorial development, and relationship-building.

They are intended as flexible pathways that can grow and adapt according to community priorities and future opportunities.

This stage of the project was also made possible through local collaboration and trust built during the research process. These relationships opened space for future ideas, including early architectural guidance and an infrastructure concept plan to support hospitality, visitor experiences, and shared community use (see appendix). A more developed strategic guidebook and implementation package was also created as a companion output of this project. It expands these directions into practical initiatives, timelines, partnership opportunities, and pathways for future community-led development.

Figure 23: Meeting in La Papaya with community members during the presentation and discussion of the strategic guidebook



System analysis revealed that many risks stem not only from external shocks, but from weak coordination, uneven value recognition, and fragmented initiatives

Desired futures exploration helped define what long-term progress could look like if risks were addressed. This included the exploration of coordination, recognition, and continuity as tools for system change.

Leverage point analysis suggested that meaningful change may come less from isolated programs and more from improving the underlying conditions that shape how the system functions.

Strategic direction development translated these broader leverage points into practical pathways for La Papaya based on its existing strengths, context, and aspirations.

Figure 24: Funnel framework translating coffee system risks into desired futures, leverage points, and strategic directions for La Papaya

Initiative Portfolio Overview

Branding & Storytelling as a Tool for Coordination

A key insight from this research is that value in coffee depends not only on how it is produced, but also on how it is understood and communicated. Many decisions that shape quality happen at origin, yet they are not always visible in the market. At the same time, fragmented communication can create gaps between what producers do, what markets value, and how coffee is ultimately positioned. This strategic direction responds by treating branding and storytelling as tools for coordination, not only promotion. When information about coffees, harvest timing, quality standards, processing methods, environmental practices, and community identity is communicated clearly, different actors can make better decisions. Buyers better understand what is available, producers better understand market expectations, and partners can align support more effectively.

The focus is on collective storytelling through the coffee growers association, allowing information to be shared in a clear and consistent way rather than through disconnected individual messages. This reduces confusion, builds trust, and creates a stronger shared identity in the market. In this sense, branding becomes a bridge between production and recognition. It helps align expectations across the supply chain while allowing La Papaya to communicate its value with greater clarity and strengthen long-term visibility, identity, and opportunity.

Key Inititives

1. ### Shared Narrative

   Develop a clear and authentic story that explains La Papaya's identity, coffee practices, landscape, and values.

2. ### Standardized Coffee Information Sheets

   Create simple profiles for each coffee lot with producer, variety, process, tasting notes, and availability.

3. ### External Communication & Digital Presence

   Use social media, websites, and buyer materials to communicate directly with markets and partners.

Market Engagement & Portfolio Diversification

This strategic direction focuses on how La Papaya engages with markets through a more flexible and diversified portfolio of coffee offerings. Research found that producers often work in an environment where price signals can be unclear, and where higher effort or quality does not always guarantee stronger returns. When specialty and commercial prices move closer together, relying on one buyer type, one product style, or one sales channel can increase vulnerability.

For this reason, diversification is approached not only as offering more products but as building a smarter market strategy. Rather than placing all coffee into one category, La Papaya can organize its production into a portfolio that responds to different types of demand, price points, and buyer needs. This helps improve market fit, spread risk, and create more stable commercial pathways over time. A portfolio approach can also strengthen relationships. Different buyers look for different qualities: some seek experimental micro lots, others need consistent core offerings, and others prioritize reliable volume. Clearer segmentation allows La Papaya to match coffees more intentionally while reducing dependence on a single market outcome.

Key Inititives

1. ### Multi-Tier Coffee Portfolio

   Develop a structured portfolio with different categories such as experimental or premium lots, core specialty offerings, and more stable volume-based coffees. This helps connect different coffees with the right buyers and pricing levels.

2. ### Process Diversification & Experimentation

   Support controlled experimentation with fermentation methods, varietals, drying techniques, and quality improvement practices. This can create differentiated products and learning opportunities.

3. ### Buyer Segmentation & Relationship Matching

   Build relationships with different buyer types such as specialty roasters, exporters, cafés, or long-term volume buyers, and align offerings with their needs.

4. ### Circular Economy Opportunities

   Develop complementary products using materials already present in production, especially cascara, creating additional value streams beyond green coffee sales.

Strengthening Collective Capacity

A key finding from this research is that long-term resilience is often stronger when communities can learn, organize, and invest together. Individual producers may face limits in access to information, infrastructure, or market opportunities, but collective action can reduce these gaps. In La Papaya, the association already plays an important role as a platform for coordination, shared identity, and collaboration.

This strategic direction builds on that existing foundation. It positions the association as a space where knowledge circulates, decisions are better aligned, and resources can be shared in ways that benefit members over time. Rather than each producer working in isolation, collective capacity helps strengthen the system from within.

The focus is on improving how producers exchange practical knowledge, connect production decisions with quality outcomes, and access useful infrastructure. Shared learning can accelerate innovation, while stronger coordination can improve consistency and preparedness for changing market or environmental conditions. Collective capacity can also strengthen participation in the market. When producers learn from one another, improve quality together, and organize resources more efficiently, the community is better positioned to meet buyer needs and pursue new opportunities. For La Papaya, this pillar is about turning collaboration into long-term strength. It can help reduce duplication of effort, improve resilience, support innovation, and create a stronger base for future growth.

Key Inititives

1. ### Farmer to Farmer Collaboration

   Create regular spaces for members to share processing techniques, discuss successes and challenges, and exchange practical knowledge.

2. ### Collective Quality Feedback Loops

   Develop shared practices that connect production decisions, cup quality, and market feedback through cuppings, tastings, and input from buyers or roasters.

3. ### Shared Infrastructure

   Explore practical shared resources such as drying spaces, storage, or processing tools that can improve efficiency and quality.

Territorial Diversification Through Tourism and Complementary Activities

A key finding from this research is that coffee communities can create value beyond the sale of green coffee alone. In places with strong landscapes, knowledge, and cultural identity, tourism and complementary activities can become additional pathways for income, visibility, and local development. For La Papaya, this creates an opportunity to diversify while building on assets that already exist within the territory.

This strategic direction explores tourism as a community-led approach to diversification. Opening spaces for visits allows producers to share their farming practices, processing methods, and lived knowledge directly with visitors. It creates forms of engagement where people experience coffee not only as a product, but as something connected to land, people, and place.

The focus is on designing small-scale, authentic experiences that reflect La Papaya's identity while keeping control over narrative, participation, and value distribution within the community. Complementary activities can also help spread income across more people and reduce dependence on coffee prices alone. For La Papaya, this pillar is about turning hospitality, landscape, and coffee knowledge into new forms of opportunity while strengthening pride, visibility, and resilience over time.

Key Inititives

1. ### Community-led Coffee Experiences

   Design simple and authentic activities such as farm visits, harvesting demonstrations, producer conversations, and guided tastings.

2. ### Tourism Infrastructure Plan

   Develop practical infrastructure to support visits, such as access paths, parking, seating areas, bathroom access, and signage.

3. ### Payment and Value Distribution System

   Create clear pricing guidelines and fair ways to distribute income from visits and origin experiences.

4. ### Complementary Territorial Activities

   Explore related opportunities such as local food, nature walks, workshops, crafts, or overnight stays.

5. ### Industry Aligned Origin Experiences

   Design visits for roasters, buyers, and coffee professionals that combine learning, relationship-building, and commercial opportunity.

9. CONCLUSION

Reframing Coffee Sustainability Through Systems Change

This research set out to understand coffee sustainability as a system-level condition shaped by how risk, value, and coordination are distributed across the coffee value chain. By centering lived realities of producers in La Papaya, the study reveals that many of the pressures commonly framed as isolated issues, such as climate change, price volatility, or production constraints, are in fact interconnected outcomes of broader structural dynamics within the global coffee system. These findings highlight a persistent imbalance: while producers carry the majority of environmental and financial risks, much of the value generated through differentiation and market positioning accumulates downstream. At the same time, sustainability initiatives, though well-intentioned, often operate within existing system logics and do not address producer realities. This creates a condition where improvements at the farm level do not always translate into long-term stability for producers.

However, the research also demonstrated that alternative pathways are already emerging within the system. Producers actively engage in innovation at origin through processing methods, quality improvements, land care, and new ways of engaging with markets. When supported by stronger coordination, clearer communication, and more stable relationships, these practices have the potential to reshape how value is recognized and distributed.

From a systems perspective, sustainability becomes less about optimizing individual components and more about strengthening connections between them. This includes improving feedback loops between producers and markets, aligning incentives across actors and recognizing the full scope of value created at origin, not only in terms of cup quality but also knowledge, labour, and ecological stewardship. The case of La Papaya illustrates that meaningful change does not necessarily depend on entirely new systems, but reconfiguring existing relationships in ways that are more coordinated and grounded in mutual understanding. Strategic directions such as collective capacity building, portfolio diversification, and territorial diversification suggest that resilience can emerge from within the system when local knowledge and priorities are placed at the centre.

Ultimately, this research argues that coffee sustainability must be understood as a relational and evolving system. Rather than seeking definitive solutions, it invites ongoing alignment between actors, continuous learning, and shared responsibility. By shifting focus from isolated interventions to systemic coherence, the coffee industry can move toward futures where producers are recognized and supported as central agents in shaping the system's long-term viability.

Future Research

This research offers an initial systems-oriented understanding of coffee sustainability grounded in the experiences of producers in La Papaya. While it identifies key dynamics and strategic directions, it also opens many areas for future exploration. Given the complexity and constantly evolving nature of the coffee system, continued research should remain collaborative, long-term focused.

One important area for future research is exploring how value is distributed across the supply chain. While this research identified gaps between where value is created and where it is captured, future work could further explore how different sourcing, pricing, and trading approaches affect income stability for producers and other actors across the system. This could help improve transparency and strengthen alignment between stakeholders.

Future research could also explore alternative financial and market models that reduce exposure to price volatility. Given the strong influence of the C-market and the disconnect between global pricing systems and local production realities, there is an opportunity to investigate approaches that distribute risk more fairly across the supply chain. These models could be explored not only as financial tools, but as ways of redesigning relationships, incentives, and decision-making within the coffee system.

Finally, there is also room to expand research into policy and institutional environments. Understanding how government programs, financial systems, and international regulations shape producer capacity could help connect local strategies with broader structural conditions and identify opportunities for more long-term support in coffee-producing regions.

Industry Suggestions

This research also highlights opportunities for institutional actors and industry stakeholders to play a more active role in supporting resilience and innovation at origin. Producers are already experimenting with processing methods, regenerative practices, tourism, and diversification strategies, but many of these efforts require longer-term support, infrastructure, and financial flexibility to grow sustainably. Future collaborative efforts between producers, roasters, importers, organizations, governments, and financial actors could help create funding pathways and support systems that strengthen innovation at origin rather than concentrating resources downstream. Flexible financing models, microcredit, and investment in shared infrastructure could help producers manage risk while expanding opportunities for experimentation and value creation.

There is also space for industry actors, including roasters, importers, and organizations, to further explore how production practices are recognized and communicated beyond cup quality. Expanding platforms that highlight regenerative practices, experimentation, and origin-based knowledge could contribute to broader recognition of the work taking place, while opening new ways for these practices to be engaged with by wider audiences.

In response to fragmentation, further research could also support the development of simple, accessible tools that facilitate communication and coordination across actors. Shared formats for conveying information related to logistics and traceability could help reduce asymmetries in access to information. When developed and supported through long-term engagement by industry actors, these tools have the potential to strengthen continuity and alignment across the system while remaining adaptable to local contexts.

Closing Reflection

This research was made possible through relationships. It was shaped through conversations, shared time, and the generosity of people who chose to share their experiences, perspectives, and uncertainties. The insights in this work are grounded in those exchanges and in the trust offered by producers in La Papaya and others across the coffee sector who participated in the process. Rather than treating knowledge as something to be extracted, this research was built through dialogue, reflection, and shared learning. The voices, ideas, and questions of participants were central to how the work evolved.

Spending time with the community of La Papaya also showed the importance of proximity in systems thinking. Many of the forces discussed in coffee, market volatility, climate pressure, coordination gaps, or value distribution can seem abstract from a distance. But within everyday life, they are lived through real decisions about work, family, land, investment, and future hopes.

This reinforces the value of grounding system analysis in real communities, where complexity is not theoretical, but human and practical.

Ultimately, this research reinforced that coffee sustainability cannot be addressed through isolated actions alone. It calls for more connected, coordinated, and relationship-based approaches. It also calls for humility: no single perspective can fully explain the system, and meaningful change often grows through collaboration over time.

This work does not aim to begin or end the conversation, but to contribute to it. It is one part of a larger and ongoing process of learning, listening, and collective exploration, where producers, communities, and actors across the system continue to shape what a more sustainable coffee future can become.

Figure 25: Pictured in La Papaya: Oswaldo Torres, researcher Valeria Suing, and local collaborators from SD Arquitectura during the presentation of the strategic guidebook and future development concepts.

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APPENDIX

- A: Strategies and Initiatives Guidebook
- B: Tourism & Coffee Experience Program

A : STRATEGIES AND INITIATIVES GUIDEBOOK

La Papaya

Use of this Guidebook

This guidebook was developed by Valeria Suing as part of a Major Research Project at OCAD University, in collaboration with members of La Papaya coffee community. This guidebook is intended to be used and shared by La Papaya and its collaborators in support of its development and strategic initiatives.If shared externally, it is recommended to attribute this guidebook to its original context and contributing collaborators (including photography by Ariel Chalan and infrastructure planning by SD Arquitectura).

Introduction

This guidebook was created through the conversations and reflections shared with members of La Papaya community. It brings together ideas that emerged through a Major Research Project through an analysis of the coffee system, structural risks, and desired futures. The purpose of this guidebook is not to define what should be done, but to offer a set of directions that can be explored and adapted over time.

The strategies presented here are organized into four main pillars:

- How La Papaya tells its story and communicates its work
- How it engages with markets and diversifies its product offering
- How the community collaborates and shares resources
- How the territory can open to new activities such as tourism

All of these strategies are connected and are represented through pillars. Each section includes ideas that can be explored at different moments. Some can start small, while others may take more time and logistics. The guidebook is meant to be flexible and used in ways that bring the most value to the community.

Most importantly, this guidebook recognizes that La Papaya already has strong knowledge, experience, and ways of working. The goal is to support what already exists and open space for new possibilities and opportunities.

Understanding the Current Model

To explore future opportunities, it is important to understand the current operations of the association. La Papaya operates as a community of coffee producers deeply engaged in the cultivation, processing, and commercialization of specialty coffee. Their work is rooted in strong relationships with the land, a commitment to quality, and a growing interest in innovation.

Coffee production in La Papaya is not only an economic activity, but also an environmental, cultural, and collective practice. The association plays an important role in supporting coordination and shared identity within the community.

As part of the research process, a Flourishing Business Model Canvas was developed to explore how environmental, social, cultural, and economic value are currently created within La Papaya, while identifying opportunities for future growth and resilience (see Figure 26).

Based on research and conversations with community members, several elements already present in La Papaya contribute to a strong and evolving model, such as:

Strong relationships with land and agroforestry practices: producers maintain practices that care for the land and avoid treating coffee as a monoculture. This supports long-term sustainability and contributes to the distinct characteristics of the coffee.

Commitment to quality: there is a clear interest in maintaining and improving quality through processing methods, varietals, and post-harvest methods.

Community and association-based structure: the association creates a space for coordination, shared identity, and collective action.

Emerging territorial identity: La Papaya is beginning to be recognized not only as a production area but also as a place with unique environmental conditions, cultural identity, and potential experiences.

Flourishing Business Model Canvas

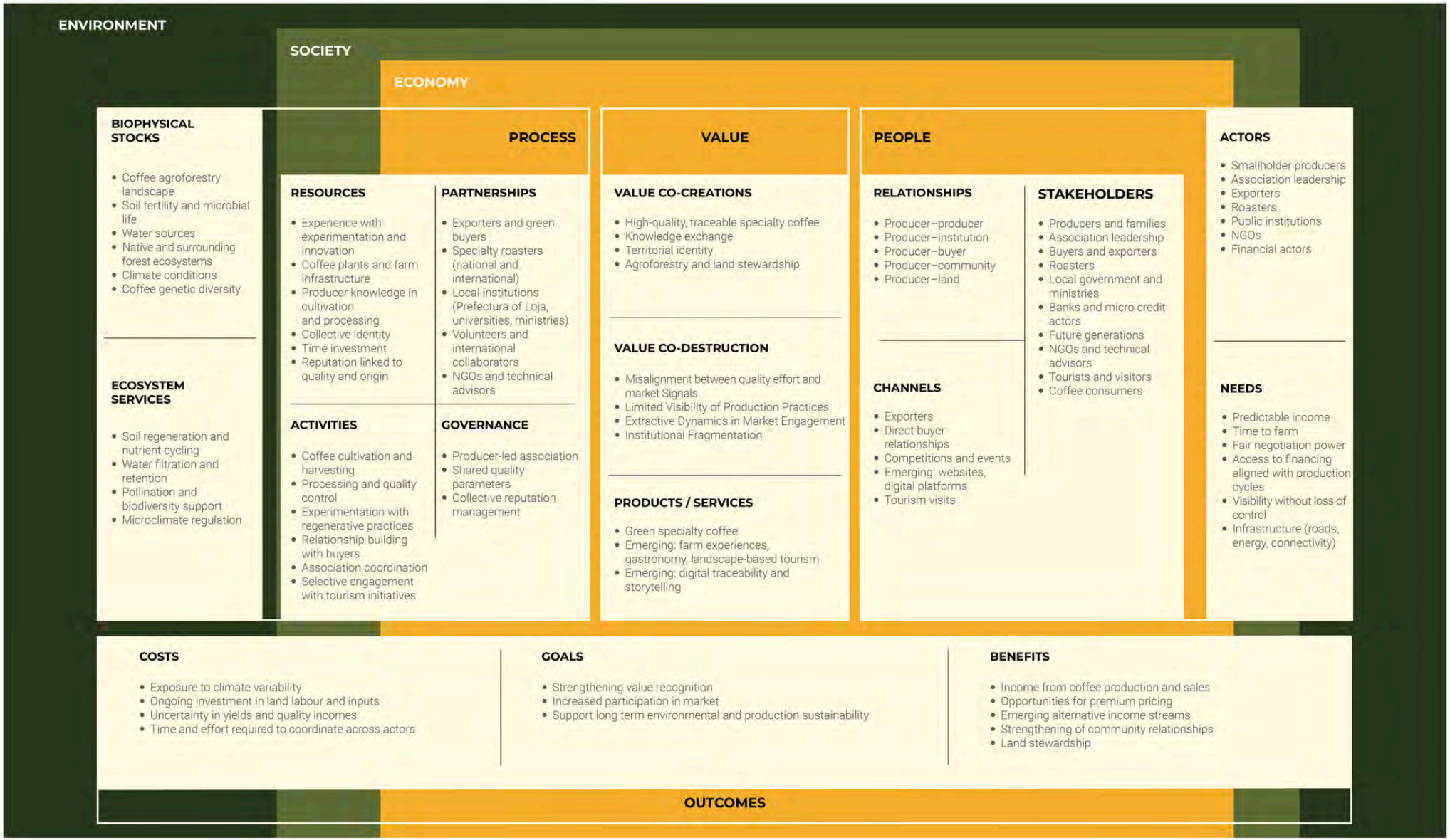

Figure 26: Flourishing Business Model Canvas for La Papaya, illustrating environmental, social, and economic dimensions

SWOT Analysis

This SWOT reflects current conditions based on research insights. The community has strong practices and knowledge within the specialty coffee sector. There is a great commitment to quality, innovation, and engagement within an association structure. However, as discussed with community members, there are still some coordination challenges between producers. Another persistent obstacle identified is the limited access to a consistent market and the dependence on external actors for commercialization.

Externally, aspects such as price volatility, climate change, and rising costs represent threats that can affect the operations of La Papaya. Still, opportunities arise as consumer behaviour supports a growing demand for traceability, relationship building, circular economy, and sustainable product offerings. The key is to mitigate threats and risks while using community strengths to explore new initiatives.

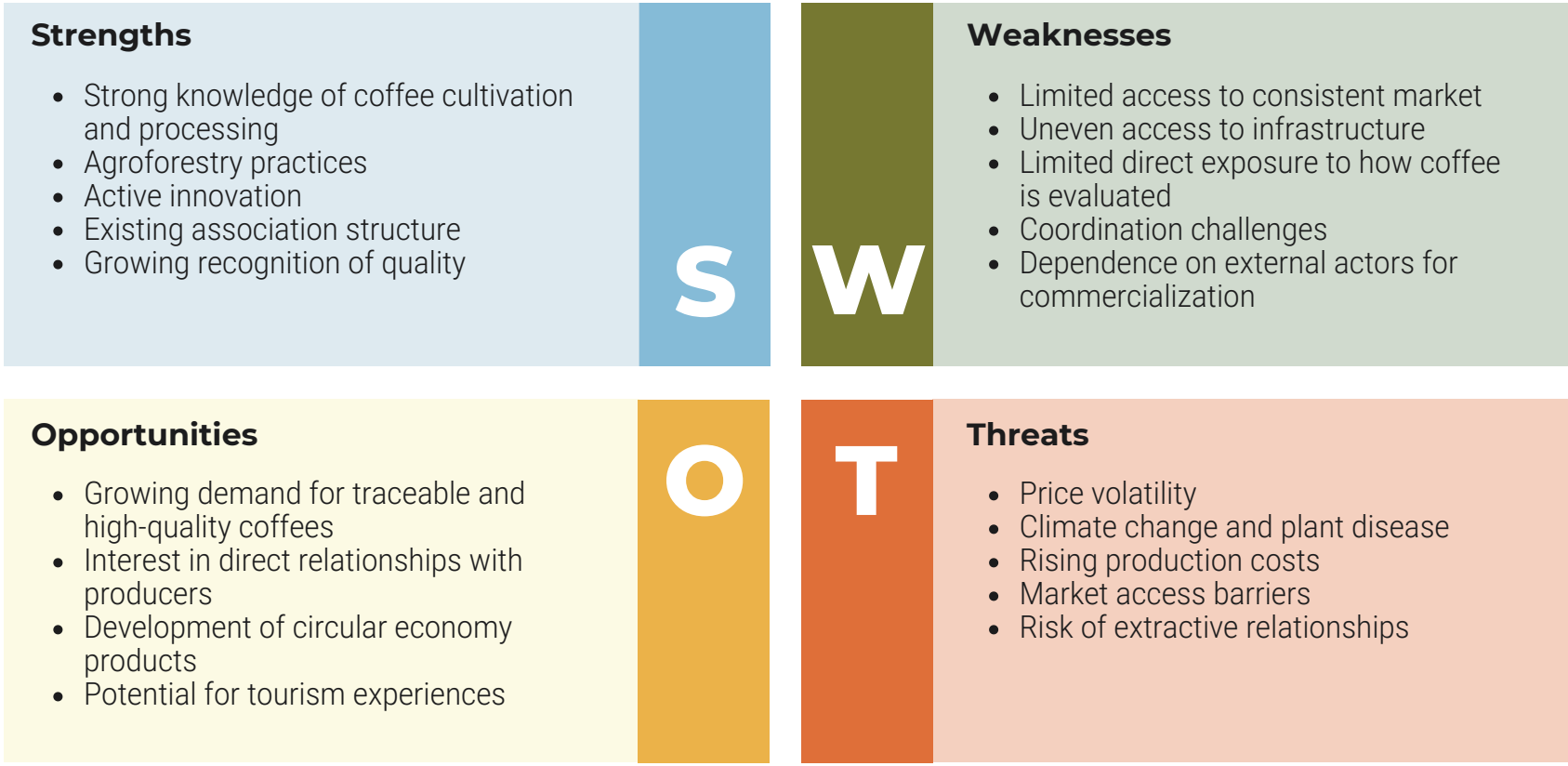

Figure 27: SWOT analysis of La Papaya, outlining key strengths, weaknesses, opportunities, and threats

La Papaya: Mission & Values

Understanding La Papaya's current model gives a clear understanding of the community's mission and values. These statements help define the purpose and focus of the association. The mission and values statements serve as a guiding star, supporting consistency and coherent growth.

Mission

La Papaya is a community of coffee producers committed to cultivating, processing, and sharing coffee in ways that reflect the land, respect for knowledge, and long-term sustainability. The community aims to create value through coffee quality and the way coffee is produced, shared, and connected to people, place, and culture.

Values

Connection to land: Coffee production is rooted in a deep relationship with the land. Practices prioritize long-term soil health, biodiversity, and ecological balance, recognizing that quality and sustainability are interconnected.

Collaboration: The association is a space for coordination, shared identity, and mutual support. Collaboration allows producers to learn from each other, make better decisions and strengthen their position in the system.

Quality with Intention: Quality is not only a result, but a process shaped by care, experimentation, and knowledge.

Territorial identity: La Papaya is more than a production site; it is a place with beautiful landscapes and culture. Interactions are approached with care to ensure that they are reciprocal and respectful.

Initiative Portfolio

Building on the current model and insights identified, La Papaya is in a position where multiple opportunities exist. However, this requires a holistic approach that can not be addressed through isolated actions.

Rather than focusing on a single solution, this guide proposes an initiative portfolio, which proposes a set of coordinated efforts that work together over time. This approach recognizes that challenges such as price volatility, market access, quality recognition, and long-term sustainability are part of a broader system. Addressing them requires action that reinforces each other.

Within this portfolio, strategies are organized into four key pillars. Each pillar responds to specific needs identified in the research while building on strengths that already exist in the community. Each pillar contains a set of initiatives that can be explored, adapted, and implemented gradually.

The following sections outline each pillar and its associated initiatives, providing practical directions that can support La Papaya in strengthening its position within the sector while maintaining its identity, knowledge, and collective values.

PILLAR 1:
Branding & Storytelling as a Tool for Coordination

Initiative 1: Shared narrative
Initiative 2: Standardized coffee information sheets
Initiative 3: External communication & digital presence

PILLAR 2:
Market Engagement & Portfolio Diversification

Initiative 1: Muti-tier coffee portfolio
Initiative 2: Process diversification and experimentation
Initiative 3: Buyer segmentation and relationship matching
Initiative 4: Circular economy opportunities

PILLAR 3:
Strengthening Collective Capacity

Initiative 1: Farmer to farmer collaboration
Initiative 2: Collective quality feedback loops
Initiative 3: Shared Infrastructure

PILLAR 4:
Tourism and Complementary Activities

Initiative 1: Community led coffee experiences
Initiative 2: Tourism Infrastructure Plan
Initiative 3: Payment and value distribution system
Initiative 4: Complementary territorial activities
Initiative 5: Industry aligned origin experiences

Branding & Storytelling as a Tool for Coordination

PILLAR 1

Strategic Intent

This pillar positions branding and storytelling as tools for communication and coordination across the community, customers, and key partners.

In La Papaya, many of the practices that create value, such as agroforestry, selective harvesting, processing decisions, and experimentation, are not always fully visible or understood by buyers or consumers. This creates a gap between what is done at origin and how value is recognized in the commercial market.

This is why branding and storytelling can help close this gap by making production practices, quality decisions, and community identity more visible across actors.

Focus Areas

- Build a collective narrative for La Papaya coffee association
- Standardize coffee information for potential customers
- Develop shared communication tools

Initiative 1: Shared narrative

La Papaya has a great opportunity to build a shared narrative that connects environmental practices, production methods and community identity. This narrative serves as a foundation that can be adapted across different contexts, including buyer communication, tourism and institutional engagement.

Key Actions

1 Define core narrative structure

Identify and document the foundational elements of La Papaya's story. This may include:

Territorial context (location, altitude, climate)
Agroforestry and environmental practices
Production and processing approaches
Community structure and association role
Commitment to quality and experimentation

2 Develop audience specific narratives

Translate the core narratives into different variations based on audience needs. For example:

Audience	What they care about	What they care about
Exporters / Importers	Volume, logistics, reliability, risk	Organization, consistency, ability to deliver, coordination
Specialty Roasters	Quality, consistency, uniqueness, traceability	Processing methods, cup profile, innovation, and reliability
End consumers	Story, origin, emotional connection	Community, land, culture, and sustainability
Tourists / visitors	Experience, authenticity, learning	Farm practices, knowledge, landscape
Institutions (Government, Universities and NGOs)	Impact, development, sustainability	Agroforestry, community collaboration, innovation

Table 5: Audience specific narratives example

3 Create multi format narrative outputs

Short format (2-3 sentences) for quick use
Medium format (paragraph) for buyer communication
Long format (story) for presentations and partnerships

4 Document producer voices

Capture video and/or written reflections from association moments to ensure authenticity and build a narrative archive over time. Collect stories such as background or farm stories.

5 Validate and iterate with external actors

Share narrative with buyers, exports, and partners to ensure relevance and alignment, and use feedback for next iterations.

Initiative 2: Standardized coffee information sheets

This initiative focuses on improving how coffee information is documented and communicated, creating a consistent bridge between production and commercialization. By standardizing information across producers, La Papaya can reduce variability in how coffees are presented and improve clarity for buyers. Clear and structured information allows external actors to better make informed decisions. This also supports internal coordination by aligning how producers describe their coffees and practices.

Key Actions

1 **Design a standard template**

Develop a template with following information:

- Producer or farm identification
- Variety
- Process
- Altitude and location
- Processing information (e.g., fermentation time, drying method)
- Tasting profile (if available)
- Volume availability
- Price

2 **Define data collection protocols**

Establish clear guidelines on:

- How data would be collected
- Who would be in charge of collecting data
- Deadlines for data collection

3 **Pilot and refine**

Test templates with a small group of producers and buyers, adjusting for usability and clarity.

Approach: A practical way to organize and share information is maintain a central Excel file with all technical data. However, if the community decides to share the Excel file with collaborators or buyers it is important to also provide supporting materials using the data collected from Initiative 1. This can include a short document with La Papaya's overall story and producer or farm profiles. This helps buyers who have not visited La Papaya to quickly evaluate coffees but also understand the story and context behind each lot, supporting transparency and differentiation in the market.

Initiative 3: External communication & digital presence

This initiative focuses on developing shared communication tools that allow La Papaya to present itself in a coordinated origin across different touchpoints. By building a consistent external presence, La Papaya can improve visibility, strengthen relationships and reduce reliance on fragmented or intermediary communication.

Key Actions

1 Develop a shared digital presence

Establish a collective social media account and keep working on the website with external partners.

Examples of content:

- Photos and videos from farms
- Harvest moments
- Photos from visits and coffee tours
- Explanations of processing methods
- Agroforestry practices explanation
- Announcements of exciting new collaborations
- Visits from industry members
- Milestones or achievements

Social media can also be used as a way to communicate internally. This can include announcements for workshops, events, and training sessions.

2 Create buyer facing materials

Seasonal availability summaries and origin presentation decks.

3 Build a centralized content archive

Shared archive with photos of farms, processes, and landscapes, as well as narrative materials, coffee data and documentation.

4 Establish basic communication rhythms

Define simple routines such as monthly updates, harvest season communication, and buyer outreach moments.

Pathways to Implementation

Implementation should follow a progressive and adaptive approach, starting with small pilots and scaling.

Core Tools

- WhatsApp: Acts as the main channel for day-to-day communication and coordination across producers.
- Google Drive: Acts as the main repository for all materials.
- Canva: Accessible tool for creating visual materials.
- Instagram, Facebook and LinkedIn: Main platforms for sharing externally.
- PDF documents: Simple and widely accepted format for sharing information with buyers.

Key Partners

- Buyers / Exporters: Provide feedback on coffee sheets, narrative clarity, and help refine what information is most useful.
- Local designers: Set up templates and help define simple visual identity. Improve accessibility and clarity of materials and support the development of communication assets.
- Internal community members: maintain coordination, upload, and organize files. Ensure continuity and adaptation.
- Translator: Ensure buyer-facing material is in different languages according to market.
- Marketing actors: To help ensure communication strategy aligns with long-term marketing goals, and assist with digital presence.

Operational Requirements

To support this pillar, several enabling conditions are needed:

- Coordination structure: a defined role within the association to oversee narrative consistency and communication efforts.
- Time allocation: dedicated time for documentation, communication, and coordination activities.
- Digital access: responsible for communication efforts to have access to internet and shared platforms.
- Training: short practical sessions on data documentation and narrative use.

Overall Suggestions

- Start simple and build gradually
- Prioritize clarity over perfection
- Build on current knowledge, relationships, and practices
- Maintain authenticity
- Centralize data into one accessible folder

Milestones

0-3 Months

Define core narrative
Develop coffee information template
Begin organizing existing materials

3-6 Months

Refine narrative and templates
Expand adoption across association
Develop initial buyer facing materials
Launch basic social media presence

6-12 Months

Launch website
Strengthen visual and narrative assets
Integrate storytelling into buyer engagement
Align communication with tourism activities

12+ Months

Fully integrate storytelling into:
Sales processes
Market relationships
External partnerships

Market Engagement & Portfolio Diversification

PILLAR 2

Strategic Intent

This pillar focused on how La Papaya engages with markets through a more diversified and coordinated portfolio of coffee offerings. This pillar proposes a portfolio-based approach where La Papaya organizes its coffee into different categories aligned with different types of demand. By doing so, the community can better match production with market opportunities, stabilize income, and reduce dependency on a single pricing structure.

This pillar focused on strengthening how La Papaya positions its coffee across different segments, while improving coordination between production decisions, buyer relationships, and commercialization strategies.

Focus Areas

- Develop a multi-tier coffee portfolio
- Support process diversification and experimentation
- Strengthen buyer segmentation and relationship matching
- Improve internal portfolio coordination
- Explore circular economy opportunities

Initiative 1: Muti-tier coffee portfolio

La Papaya can strengthen its market position by organizing its coffees into a structured portfolio that reflects different quality levels, processes, and market opportunities. Instead of treating all coffees as part of a single category, this approach allows producers to intentionally align production with different price points and buyer expectations. This creates flexibility in commercialization, allowing La Papaya to capture value across multiple segments while reducing exposure to price volatility.

Key Actions

1. **Define portfolio categories**

   Establish clear categories of coffees based on quality, process and market positioning. For example:
   - Experimental lots (89.9+ cups)
   - Signature specialty coffees (85 - 89)
   - Community lots (80-84)

2. **Define criteria for each category**

   Identify what determines where a coffee belongs. This may include:
   - Cup score (if available)
   - Process type
   - Volume availability

3. **Align production expectations**

   Ensure producers understand what is expected for each category and what level of effort and risk is involved, as well as the potential market outcome.

4. **Test and adjust categories over time**

   Use real market feedback to refine categories, pricing strategies, and volume allocation.

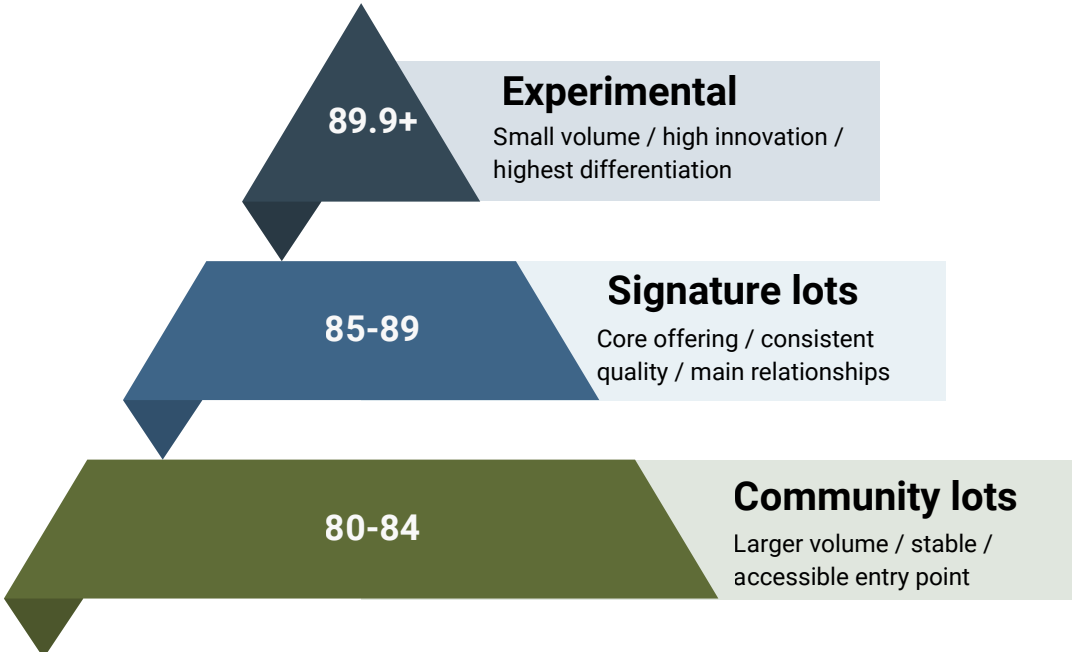

Figure 28: Coffee tier examples

Initiative 2: Process diversification and experimentation

La Papaya already shows interest in experimentation through fermentation methods, varieties, and drying techniques. This initiative focuses on structuring that experimentation while maintaining stability in production.

Key Actions

1. **Define experimentation scope**

   Establish clear boundaries of what percentage of production can be allocated for new methods, what types of processes are being tested, and what level of risk is acceptable

2. **Document process and results**

   For each experimental lot, record process details and document cup profile and feedback.

3. **Create internal learning loops**

   Share results within the association of what worked, what did not, and what can be improved.

4. **Connect experimentation to market opportunities**

   Ensure experimental coffees are matched with buyers interested in innovation and communicate clearly through storytelling.

Possible experimentations

Area of Experimentation	What can be tested	Examples
Fermentation	Length	12-18 hrs / 24-36 hrs / 48 hrs +
Fermentation	Oxygen Exposure	Open / covered / sealed
Fermentation	Temperature	Controlled vs uncontrolled temperature environment
Processing (honey)	Amount of mucilage	High / medium / low
Variety trials	Different coffee varities	Bourbon / Geisha etc.

Table 6: Potential areas for coffee processing experimentation, including variables, and example testing conditions

Initiative 3: Buyer segmentation and relationships matching

This initiative focuses on strengthening how La Papaya build and maintains relationships with buyers, ensuring alignment in terms of volume, pricing, values, and quality expectations.

While diversifying market engagement, La Papaya continues to operate within the specialty coffee space. That means that coffees positioned for more stable or higher volume channels should maintain a quality threshold and be directed to buyers who value traceability and transparency. This initiative prioritizes intentional partnerships and who are open to building longer-term relationships.

Key Actions

1 Define aligned buyer profiles

Identify and prioritize buyers who:

- Value specialty coffee
- Understand variability in agricultural production
- Are open to transparency in pricing and processes
- Show interest in origin, not only product

This may include:

- Specialty roasters with different tiers of offering
- Roasters with both flagships and “house” coffee that still maintain quality standards
- Experimental focused buyers (innovation and differentiation)

2 Clarify quality positioning across portfolio

Ensure that all coffees:

- Remain within a specialty framework
- Are clearly positioned
- Are communicated transparently in terms of quality and intention
- Maintain cup quality

3 Establish relationship-building practices

Move towards ongoing relationships by:

- Maintaining regular communication beyond sales moments
- Sharing updates during harvest and pre-harvest periods
- Inviting feedback on coffees and communication

Initiative 4: Circular economy opportunities

This initiative explores how La Papaya can generate additional value from materials already present in the production process. By developing complementary products the community can diversify income streams while reducing waste.

Key Actions

1 **Identify and map available by-products**

Develop a clear understanding of:

- Types of by-products generated (pulp, cascara, wastewater, organic matter)
- Volumes and seasonality
- Current uses or disposal methods

This creates the foundation for identifying viable circular opportunities.

2 **Strengthen internal resource cycles**

Explore how by-products can be reintegrated into production systems, such as:

- Composting organic waste to improve soil health
- Producing organic fertilizers
- Exploring biomass use for energy heat generation

These practices can reduce production costs, improve soil quality and long-term productivity.

2 **Develop cascara as a marketable product**

Commercialization can begin with local markets, direct relationships with buyers and partnerships with roasters or cafes interested in origin-based products.

3 **Align circular practices with narrative and market positioning**

Integrate these efforts into La Papaya's broader positioning by:

- Communicating environmental practices through storytelling
- Highlighting circularity as part of practices
- Connecting sustainability efforts with buyers and institutions

Pathways to Implementation

Implementation should follow a progressive and coordinated approach, building over time as capacity and alignment increase.

Core Tools

- Excel / Google Sheets: Serves as the central tool for portfolio management and tracking. Supports categorization of coffees, tracking volumes, processes and availability. (Can be tied to coffee information sheets)
- PDF Documents: Used for structured communication with buyers. Cascara product sheets.

Key Partners

- Buyers / Roasters / Exporters: Provide feedback on portfolio structure, quality expectations and pricing. Support volume planning and logistics coordination. Provide visibility on market demand.
- Technical institutions (Universities, Agronomy support): Support experimentation processes and documentation, provide guidance on processing methods and biomass use and assist in validating circular economy practices.
- Local or regional partners: Support initial commercialization of cascara. Act as early testers for new products.
- Internal community members: Coordinate communication and portfolio tracking. Support documentation of processes and practices.

Operational Requirements

To support this pillar, several enabling conditions are required:

- Coordination structure: A defined role or small team within the association responsible for portfolio tracking, buyer communication, and alignment between production and commercialization.
- Data consistency: Regular and accurate input of coffee information, volumes, availability and process details.
- Time allocation: dedicated time for updating shared tools, communicating with buyers, key partnerships outreach and communication, and documentation.
- Training: short practical session on portfolio categorization, understanding buyer expectations and circularity practices.

Overall Suggestions

- Start with a simple portfolio structure and refine over time
- Maintain especially quality across all categories.
- Prioritize relationships, focusing on long-term alignment with buyers

Milestones

0-3 Months

Identify and map current buyers and their profiles
Define initial portfolio categories (experimental, core, stable specialty)
Set up shared Excel or Google Sheets for tracking coffee lots and categories
Begin documentation on processes
Map available by-product and current uses

3-6 Months

Refine portfolio structure based on early feedback
Begin actively matching coffees to aligned buyers
Strengthen communication with key buyers (pre-harvest and harvest updates)
Key partnership outreach for support in experimentation processes and circular economy practices

6-12 Months

Strengthen repeat buyer relationships and establish communication rhythms
Improve internal coordination between production and sales decisions
Expand structured experimentation with clearer learning loops
Test commercialization of cascara or by-products
Align portfolio with storytelling and external communication efforts

12+ Months

Develop stronger long-term buyer partnerships
Refine experimentation and innovation in processing methods
Expand circular economy initiatives

PILLAR 3

Strengthening Collective Capacity

Strategic Intent

This pillar focuses on strengthening the collective capacity of La Papaya through collaboration, shared learning, and access to infrastructure. This strategic direction builds on La Papaya's association foundation by reinforcing the association as a space where knowledge circulates, decisions are informed collectively, and resources are shared. Strengthening collective capacity allows producers to learn from each other, reduce duplication of effort, and improve consistency across the community.

Focus Areas

- Farmer-to-farmer collaboration and knowledge exchange
- Collective quality feedback and learning loops
- Shared infrastructure and resources access
- Alignment between production, quality, and market signals

Initiative 1: Farmer-to-farmer collaboration and knowledge exchange

This initiative focuses on creating regular and intentional spaces where producers can share knowledge, experiences, and practices. By creating structured opportunities for exchange, La Papaya can strengthen internal capabilities, and accelerate learning across producers.

Key Actions

1. **Create regular knowledge-sharing spaces**

   Establish simple and consistent formats such as:
   - Monthly or bi-monthly gatherings
   - Small group discussions pre or post harvest
   - Informal sessions hosted by different producers

2. **Facilitate exchange of practical knowledge**

   Encourage producers to share about processing techniques, fermentation approaches, drying practices and challenges and solutions

3. **Normalize sharing successes and failures**

   Promote environments where failures are discussed openly, lessons learned are values and experimentation is seen as a shared process

4. **Document key insights**

   Capture simple notes from sessions to build a shared knowledge base and avoid losing valuable insights over time

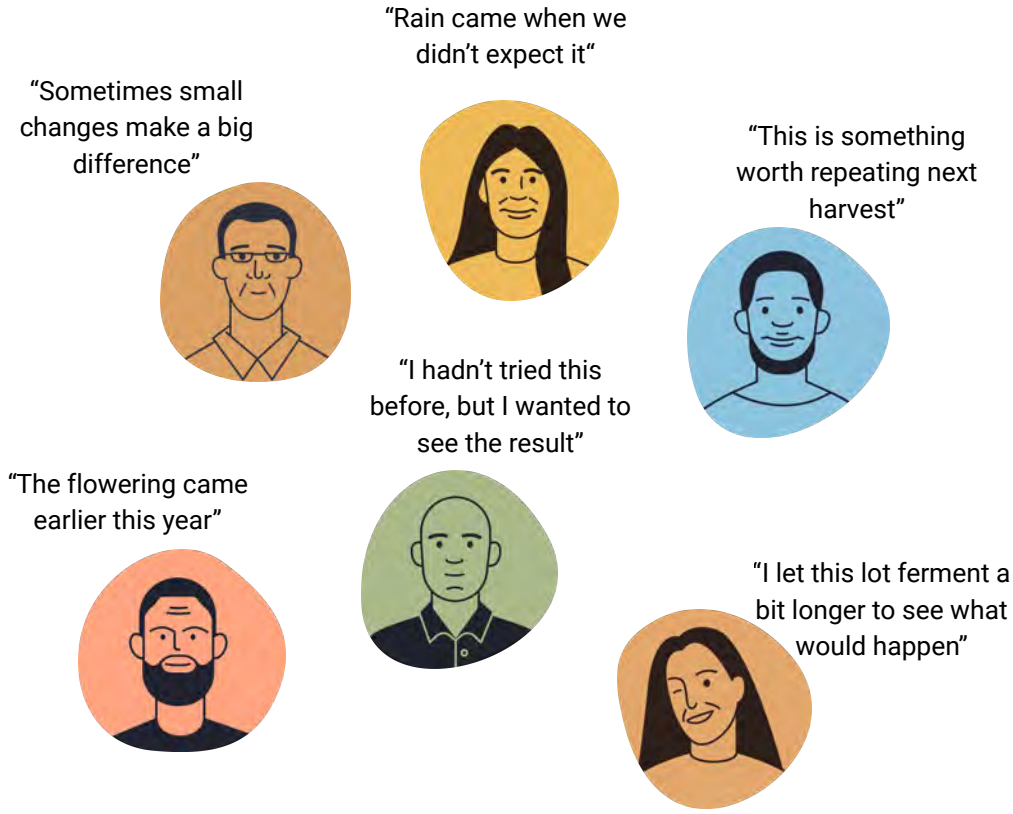

Figure 29: Possible producer reflections highlighting experimentation, uncertainty, and adaptive decision-making in coffee production

Initiative 2: Collective quality feedback loops

This initiative focuses on strengthening the connection between production decisions, cup quality and market feedback.

Currently, feedback from buyers or cupping results may not always circulate back to all producers. By creating a shared feedback system, La Papaya can improve consistency, support quality development and align production with market expectations.

Key Actions

1. **Establish regular cupping sessions**

   Organize roasting of selected coffees and host a collective tasting within the association.

2. **Connect production practices to cup results**

   During cuppings, discuss how processing and methods influenced the cup. Identify patterns across different lots.

3. **Integrate buyer and roaster feedback**

   Share insight such as buyers' perceptions, preferences, and expectations.

4. **Create shared quality language**

   Develop a common way to describe flavour profiles, quality level and defects or improvements.

5. **Use feedback to inform decisions**

   Ensure learnings are used to adjust processing methods, improve quality consistency, and guide future experimentation

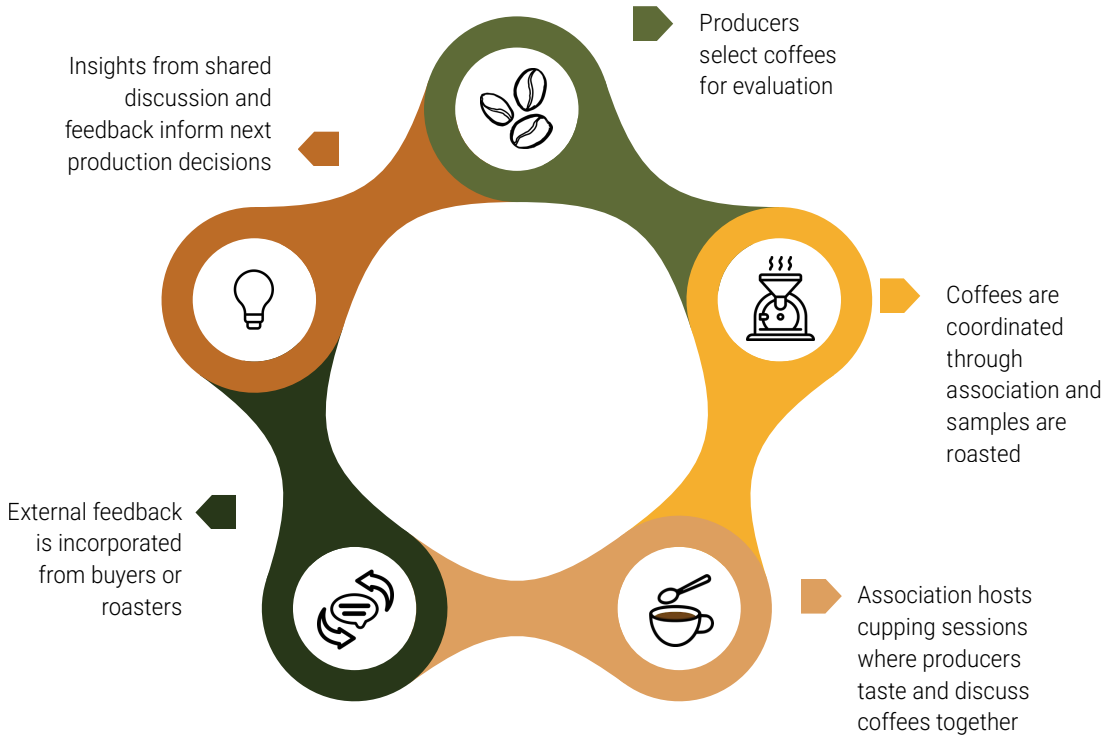

Figure 30: Collective quality feedback loop

Initiative 3: Shared infrastructure

This initiative focuses on exploring opportunities for shared resources that can improve efficiency, quality, and access to better processing conditions. By developing shared solutions, La Papaya can reduce gaps and improve overall quality across the community.

Key Actions

1. **Identify infrastructure gaps**

   Map needs such as drying space, storage capacity, and processing tools.

2. **Assess feasibility of shared solutions**

   Explore collective drying areas, shared equipment, and collective storage spaces.

3. **Integrate buyer and roaster feedback**

   Share insight such as buyers' perceptions, preferences, and expectations.

4. **Define access and usage, models**

   Clarify who can use shared resources, how access is coordinated, and maintenance responsibilities.

5. **Align infrastructure with quality goals**

   Ensure shared resources improve quality, consistency, and support better processing methods across the community.

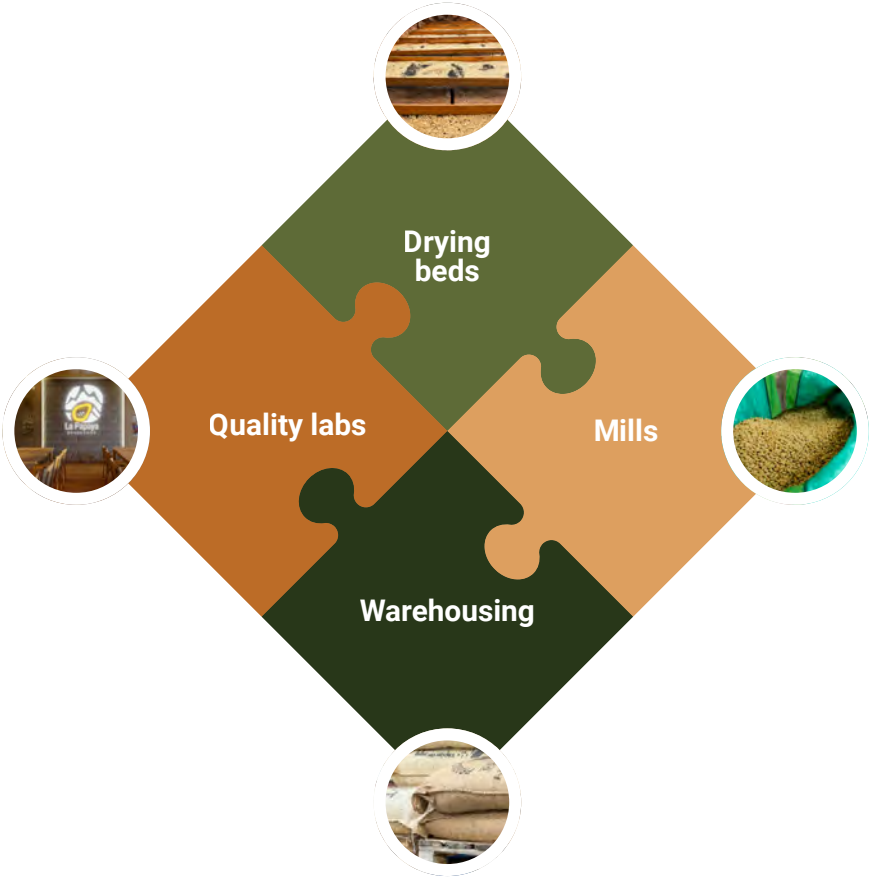

Figure 31: Key shared infrastructure components

Pathways to Implementation

Implementation should focus on building on existing relationships and practices, using simple tools to support coordination, learning, and resource sharing.

Core Tools

- WhatsApp: coordinating meetings and knowledge-sharing sessions. Sharing quick updates, photos, and feedback and maintaining continuous communication.
- Google Drive/Physical folder: storing notes from knowledge sharing sessions, organizing cupping results and feedback and documenting infrastructure plans.
- Google Docs/Notebook: Used for recording meeting notes and documenting learnings and practices.

Key Partners

- Community members with roasting capacity or local roasters: to provide roasted coffee for cupping sessions and tastings.
- Universities or technical institutions: provide technical guidance on processing and new opportunities.
- Local architects/designers: Provide technical guidance on infrastructure
- Buyers and roasters: Provide feedback on quality and preferences. Participate in cupping or feedback princesses when possible.
- Government or development programs: Support funding or co-investment in shared infrastructure. Provide technical or organizational support.
- Internal community members: lead knowledge sharing sessions, coordinate infrastructure use, and maintain documentation and communication.

Operational Requirements

- Time for collaboration and learning: Dedicated time for meetings, cuppings, and knowledge exchange.
- Facilitation structure: Coordination of who organizes sessions, when they take place and how information is captured.
- Initial investment for infrastructure: Resources for drying and storage infrastructure, as well as processing equipment.

Overall Suggestions

- Build on existing relationships, reach out to key partners who can support this process
- Start small with infrastructure and scale gradually
- Connect learning directly to production and market decisions

Milestones

0-3 Months

Begin regular knowledge-sharing sessions
Organize roasting process for tastings
Map infrastructure needs across producers
Ask for feedback through an established relationship

3-6 Months

Start sharing market feedback internally
Standardize cupping and feedback practices
Identify 1-2 shared infrastructure pilot opportunities

6-12 Months

Expand peer-to-peer learning practices (farm visits, demonstrations)
Strengthen the connection between quality feedback and production decisions
Pilot infrastructure solutions

12+ Months

Establish a continuous learning culture within the association
Maintain regular feedback loops across production and market
Expand shared infrastructure where viable

Tourism and Complementary Activities

PILLAR 4

Strategic Intent

This pillar explores tourism as a way to diversify income streams while maintaining La Papaya's territorial identity. Opening the community to visitors creates opportunities for producers to share their practices, knowledge, and environment directly, generating new forms of value beyond the sale of green coffee. At the same time, there is a need to approach tourism carefully, avoiding extractive dynamics where external actors capture disproportionate value.

In this context, tourism is approached as a territorial strategy that connects coffee, culture, and landscape. The focus is on developing small-scale, community-led experiences that allow La Papaya to maintain control over participation, storytelling, and value distribution.

This pillar builds on existing practices, knowledge, and landscape, positioning La Papaya as a place of experiences and learning.

Focus Areas

- Community-led coffee experiences
- Basic tourism infrastructure and accessibility
- Payment and value distribution systems
- Alignment between tourism, identity, and market engagement

Initiative 1: Community led coffee experiences

This initiative focuses on designing simple, authentic experiences that allow visitors to engage with coffee production learning, the landscape, and the people of La Papaya.

Key Actions

1 **Define types of experiences**

Identify a small set of experiences that can be offered, such as:

- Farm visit and walk-throughs
- Demonstrations of harvesting or processing
- Guided tastings or cupping sessions
- Conversations around agroforestry and production practices

2 **Develop simple experience structures**

Define:

- Approximate duration
- Flow of the visit (arrival, activity, closing)
- Key moments for storytelling

3 **Train and support participating producers**

Provide basic guidance on:

- How to host visitors
- How to manage group dynamics
- Provide tools for experience structure

Figure 32: Mockups of La Papaya promotional materials

Initiative 2: Tourism Infrastructure Plan

This initiative focuses on identifying and developing essential infrastructure needed to support visits in a safe, accessible, and comfortable way.

Key Actions

1 **Assess current conditions**

Identify:
- Access routes to farms
- Parking availability
- Existing space for seating or gathering
- Bathroom access

2 **Prioritize essential improvements**

Focus on:
- Clear and safe access paths
- Basic signage (directions, information)
- Simple seating areas
- Clean and accessible bathrooms

3 **Align infrastructure with experience design**

Ensure that infrastructure:
- Supports the flow of visits
- Does not disrupt production
- Maintains the natural environment

4 **Explore phased development**

Start with minimum requirements and expand as demand increases, capacity grows and resources become available

About this project: Further development of this concept would be explored through the Tourism & Coffee Experience Program package. The package includes a more advanced Infrastructure Pilot with further visualizations developed to support external engagements, such as possible collaborations and support.

Initiative 3: Payment and value distribution system

This initiative focuses on ensuring that tourism activities are economically viable, transparent, and fairly distributed among participants.

Key Actions

1 **Define pricing guidelines**

Establish simple reference points for:
- Farm visits
- Guided tastings
- Group experiences
- Prices should consider the time and effort of producers, preparation, and coordination and local context and visitor expectations.

2 **Clarify value distribution**

Define how income is shared across:
- Participating producers
- Association coordination
- Shared costs

3 **Standardized payment methods**

Ensure accessible and reliable options such as cash, mobile bank transfers, or pre-arranged payments.

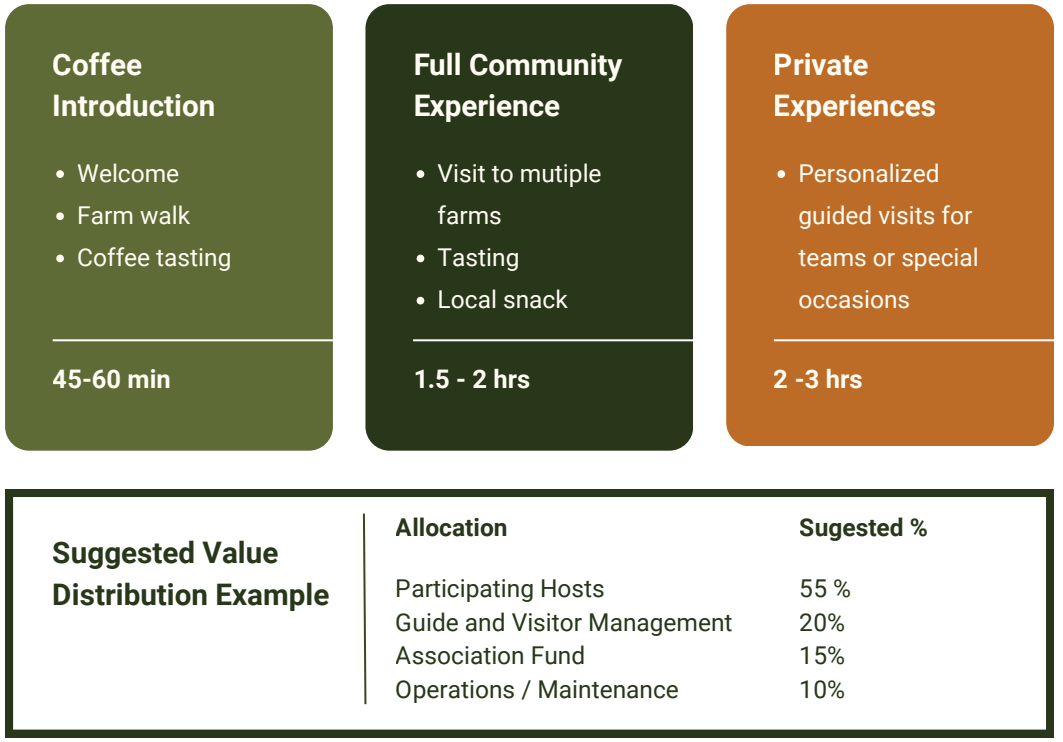

Figure 33: Proposed payment and value distribution system framework

Initiative 4: Complementary territorial activities

This initiative expands beyond coffee production experiences to explore additional activities that can diversify income. These activities should remain aligned with the community's culture, environment, and capacities.

Key Actions

1. **Identify complementary experiences**

   Examples may include:
   - Coffee shop space
   - Nature walks
   - Glamping or stays

2. **Engage multiple community members**

   Allow participation from local professionals and students in related fields.

3. **Ensure alignment with community values**

   All activities should respect local culture, avoid external imposition and maintain authenticity.

Figure 34: Exploration of possible complementary activities

Initiative 5: Industry aligned origin experiences

This initiative focuses on designing origin experiences especially for coffee industry actors such as roasters, importers, and exporters. Unlike general tourism, these visits are not only experiential but also commercial and relational spaces. Participants can deepen their understanding of production, quality, and decision-making at origin.

At the same time, it is important to ensure these visits are structured in a way that recognizes the value of time, knowledge, and coordination required by the community.

Key Actions

1 Design industry specific experience formats

Develop structured visits tailored to industry actors, such as:

- Deep dive farm visits focused on production and processing
- Guided cupping sessions
- System-level discussions on challenges and opportunities

2 Create origin visit packaged

Bundle activities into clear formats such as:

- 1 day immersions (farm visit + processing methods + cupping + meal)
- 2-3 day origin experience (multiple farm visits + comprehensive processing methods discussions + community interaction)

Packages should include a defined schedule, activities, and what is included (meals, transportation, stays)

3 Define pricing structure with value recognition

Establish clear pricing guidelines for industry visits that reflect the time and coordination required, knowledge sharing, hosting, preparation and logistics. At the same time, introduce a flexible model, such as a visit fee that applies as a standalone experience. The fee can be partially or fully offset if coffee is purchased.

4 Establish a coordination and scheduling system

Define:

- Who organizes visits
- How visits are scheduled
- How many visits can be hosted without disrupting production

4 Capture and use insights from visits

Document buyer feedback, questions, interests, and observations from discussions. Use this to refine portfolio strategy and future engagements.

Pathways to Implementation

Implementation should follow a controlled and intentional approach, ensuring tourism grows in alignment with La Papaya values, capacities, and rhythms.

Core Tools

- WhatsApp: coordinating visits and schedules, communicating with visitors and members and sharing availability and updates.
- Google Drive/Physical folder: storing experience descriptions and itineraries. Documenting feedback from visits.
- Google Docs/Notebook: writing structured experience outlines, creating visitor guides and internal coordination documents.
- Calendar: tracking visits (dates, participants and types of experience)
- Google Sheets/Excel: managing pricing and payments, monitoring participation across producers
- Instagram: used for sharing visual content of experiences, building visibility and attracting visitors, connecting tourism with storytelling and territorial identity.
- PDF documents: sharing experience packages (general and industry specific), providing clear information to visitors, buyers, and partners

Key Partners

- Roasters, importers and exporters: participants in industry-aligned visits. Strengthen long-term commercial relationships.
- Universities and academic institutions: engage students in tourism, design and/or sustainability fields.
- Local government and tourism entities: support infrastructure improvements, provide visibility, and potential access to funding.
- Architects and infrastructure specialists: support the design of context-based infrastructure. Help plan access paths and circulation, seating and gathering spaces, bathroom facilities, and signage systems.

Operational Requirements

- Coordination structure for tourism activities: A defined small group responsible for scheduling visits, coordinating with producers, and managing communication with visitors.
- Time allocation and participation guidelines: a clear understanding of who participates in tourism activities, how often experiences can be hosted, and how to balance tourism with production responsibilities.
- Infrastructure readiness: safe access to farms, visitor comfort, and clear orientation.

Overall Suggestions

- Start with trusted visitors and small groups before expanding
- Prioritize quality of experience over quantity of visitors
- Avoid dependency on external operators that may extract value
- Ensure tourism does not disrupt production activities
- Use industry visits as a strategic opportunity for relationship building
- Keep all activities aligned with community values

Milestones

0-3 Months

Define initial experience types and structures
Identify participating producers and collaborators (key partnerships)
Assess infrastructure gaps
Define initial pricing guidelines and value distribution approach

3-6 Months

Begin basic infrastructure improvements
Test small pilot visits with trusted actors (local network)
Standardize coordination and scheduling processes
Test industry-aligned visits and pricing models

6-12 Months

Strengthen coordination and hosting capacity
Refine pricing and payment systems
Pilot complimentary activities where feasible

12+ Months

Support phased infrastructure development
Establish a stable, small-scale flow of community-led visits
Strengthen La Papaya's positioning as a place of learning and experience
Develop consistent industry engagement through origin trips
Expand complementary activities where aligned with capacity
Maintain control over growth, ensuring alignment with community values

Putting it all Together

The four strategic pillars are interconnected components of a single system. Each pillar reinforces the others, creating a structure where value is generated through coordination, alignment, and shared learning.

Branding and storytelling make production practices, quality decisions, and community identity more visible, strengthening how La Papaya is understood by buyers, visitors, and partners. This visibility directly supports market engagement and a structured product portfolio positions coffees across different segments while maintaining quality standards.

At the same time, these external-facing strategies depend on internal capacities. Collective capacity enables producers to share knowledge, align practices, and respond to feedback, creating consistency and supporting ongoing improvement. Without internal systems, neither market positions nor storytelling can be sustained over time.

Territorial diversification through tourism and complementary activities connects these dynamics back to place. By being intentional, La Papaya creates opportunities for direct engagement that strengthen relationships, reinforce narrative, and generate additional income streams.

Together, these pillars create a system where production, communication, market engagement, and territory are continuously connected through feedback loops.

Envisioning 5-10 Years Ahead

Over time, La Papaya evolves into a coordinated and recognized coffee-producing community where collaboration, quality, and identity are clearly reflected in how it engages with the world. Producers operate with greater clarity on how their coffees are positioned, supported by shared systems that connect production with market opportunities.

Knowledge circulates more openly within the community, strengthening consistency while still allowing space for experimentation and innovation. This creates an environment where both experienced producers and younger generations can participate, learn, and contribute. La Papaya becomes a space where younger community members see viable opportunities to engage with coffee, not only in production but also in areas such as processing, communication, tourism, and coordination.

Visitors, including both general audiences and industry actors, engage with La Papaya not only as a place of production but as a place of learning, where practices, challenges, and decisions are shared directly. These interactions foster deeper relationships and create opportunities for collaboration beyond transactional exchanges.

As these dynamics strengthen, La Papaya contributes more broadly to the local economy by generating new forms of employment, supporting complementary activities, and creating value that extends beyond coffee production. The community begins to position itself as a small-scale innovation hub, where ideas around sustainability, processing, and territorial development are explored in practice.

Through these shifts, La Papaya maintains control over its narrative and development, diversifies its income streams, and strengthens its ability to adapt. It becomes a place that people actively seek to collaborate with and learn from, reinforcing its role not only within the coffee system but within a wider network of social, economic, and environmental relationships.

Implementation Packages for External Engagement

To support the implementation of some of the strategies outlined in this guide, the next section presents a project package that translates initiative portfolios into tangible opportunities for collaboration and investment. This package focuses on the development of the tourism project of La Papaya. It is designed to communicate clearly with external actors, such as government institutions, NGOs, universities, and investment partners, while maintaining alignment with La Papaya's values, capacities, and long-term vision. The intention is to provide a flexible structure that can be adapted depending on the type of partner, funding mechanism, or collaboration model.

Some applications may include:

- Presenting opportunities to external partners
- Applying for funding, grants, or credit programs
- Structuring conversations with key partnerships

Guiding Principles for External Engagement

Community-led development: Projects are defined and led by La Papaya.

Alignment with local context: All interventions should respond to real needs and wants within the community.

Non-extractive collaboration: Partnerships should ensure fair value distributions and avoid situations where benefits are concentrated outside the community.

Stakeholder	Role	How they can engage
Local Government	Infrastructure support and territorial development	Co-invest in access roads, signage, sanitation, permits
NGOs	Funding and technical support	Provide grants, support pilot programs, capacity building
Universities (Design, Marketing, Strategy, Agriculture)	Research, design, communication and strategy support	Support infrastructure design, experience design, branding, storytelling, content creation, and documentation
Architects & Infrastructure Specialists (e.g., SD Arquitectura)	Spatial design and infrastructure planning	Design and coordinate infrastructure developments, develop phased plans, guide implementation
Ruta del Café	Territorial integration and regional visibility	Integrate La Papaya into regional coffee routes, promote experiences, align with broader coffee tourism initiatives
Tourism Partners (Local Operators, Agencies, Platforms)	Visitor coordination and experience distribution	Support promotion, visitor logistics and booking coordination
Local Collaborators (Guides, Baristas, Transport)	Support experience delivery	Provide services during visits

Table 7: Potential stakeholder roles and engagement pathways supporting tourism development and territorial integration in La Papaya.

B: Tourism & Coffee Experience Program

La Papaya

Use of this package

This package was developed for the Asociación de Caficultores de La Papaya as a strategic resource to support opportunities for external engagement, collaboration, and long-term community development.

Attribution

Developed by Valeria Suing, from OCAD University, in collaboration with community members of La Papaya.
Photography by Ariel Chalan.
Infrastructure planning, visualizations and renderings by SD Arquitectura.

If shared externally, it is recommended to maintain attribution to its original context and contributing collaborators.

Context

La Papaya is a rural community located in San Pablo de Tenta in the Saraguro canton of Loja province, Ecuador. The community has an estimated population of around 300 residents and is characterized by smallholder agricultural production systems. Coffee cultivation has expanded progressively in the area over the past decades and has become a central economic activity within the community. The community is characterized by a strong commitment to quality, experimentation, and collective organization through its association (Asociación de Caficultores de La Papaya).

As global interest in coffee origin transparency, relationship trade and experiential engagement continues to grow, there is a clear opportunity to position La Papaya not only as a source of high-quality coffee but also as a place for connecting and learning. Producers in La Papaya hold deep knowledge of cultivation, processing, and environmental practices. This strength creates opportunities for learning and connecting through tourist activities. This program builds on existing practices by designing authentic and repeatable experiences, enabling La Papaya to host visitors in a way that is aligned with its identity, capacities, and long-term vision.

Objective

To develop a community-led Tourism & Coffee Experience Program that creates a welcoming space for connection, learning, and shared value within La Papaya. This program aims to open the territory in a way that reflects the community's identity, allowing visitors to engage with coffee, land and people through meaningful experiences.

At the same time, it supports the creation of new income opportunities, local employment, and broader participation within the community. This program seeks to contribute to the region by positioning coffee as a source of pride, innovation, and cultural identity, supporting forms of tourism that are responsible, grounded, and aligned with local values.

Experience Design Framework for General Audience

This experience is designed as a guided journey from plant to cup, allowing visitors to understand coffee through direct interaction with the landscape, processes, and people of La Papaya.

The intention is to create experiences where visitors can learn, engage, and build a deeper understanding of the work, care, and knowledge behind the cup.

Arrival & Circulation

Visitors arrive at Finca María Isolina, where parking is available, and the experience begins. Here, there will be a meeting space where visitors will be introduced to La Papaya. From here, visitors move through a guided circulation route across the territory. Depending on the length of experience selected by the visitors, visits may take place within a single farm or may include visits to multiple participating farms.

Experience Flow

1

Landscape Walk

Visitors begin with a walk, where they are introduced to coffee plants and their different varieties. Visitors here learn the importance of biodiversity and deepen their understanding of the relationship between coffee and land.

2

Harvest Experience

Visitors learn about harvesting processes and get to taste fresh coffee cherries.

3

Processing Tour

Visitors are introduced to natural, washed, and honey processes. This part of the tour explains how processing decisions impact the final taste in the cup.

4

Guided Tasting

In the main area, visitors take part in a guided tasting with brewed filter coffees. They sample different coffees and learn to identify flavours and taste differences.

5

Circular Economy

La Papaya's environmental approach is presented, highlighting the use of by-products such as cascara and other sustainable practices within the community.

6

Coffee Shop & Retail

The experience concludes at the café, where visitors enjoy drinks from the menu, connect with the community, and explore products available for purchase.

Figure 35: Experience flow for tourist visits

Experience Design Framework for Industry Partners

The Industry Origin Experience is designed as a structured but adaptable engagement platform for coffee industry actors, including roasters, importers, and exporters. This offering is built as a modular system of activities that can be configured depending on the objectives, interests and level of engagement of each visitor. These visits allow industry actors to engage directly with producers and explore commercial alignment opportunities.

Engagement Structure

Context understanding

Provide a clear overview of La Papaya's production model, agroforestry systems, community structure and current challenges and opportunities. Ground visitors in the broader system of the community.

Production and processing deep dive

Focused exploration of varieties and production strategies, harvest practices and quality control, processing methods, and post-harvest processing. Provide site visits to relevant farms and processing areas. Adapt depth depending on visitor expertise.

Quality evaluation and cupping

Provide structured cupping sessions and open conversation around flavour profiles, quality differentiation, and current portfolio tiers.

Portfolio alignment

Presentation and discussion of La Papaya's coffee offerings, focus on matching coffees with buyer needs, and aligning expectations on volume, quality, and pricing. Explore long-term sourcing opportunities.

Infrastructure Pilot

This pilot focuses on enhancing key infrastructural areas such as circulation, gathering spaces, and the development of hospitality areas. The objective is to create a high-quality visitor experience while maintaining the integrity and values of the community.

The development of this section has been supported by SD Arquitectura, whose consultation and visualization work provides a framework for integrating infrastructure into the territory.

The intention is to create spaces that feel familiar and meaningful, and function as places for visitor and community engagement. The infrastructure is guided by a locally grounded design philosophy, where the use of local materials such as stone, wood, and regional elements is implemented. It was also important to integrate infrastructure with the landscape, maintaining views, topography, and natural flows.

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Legend

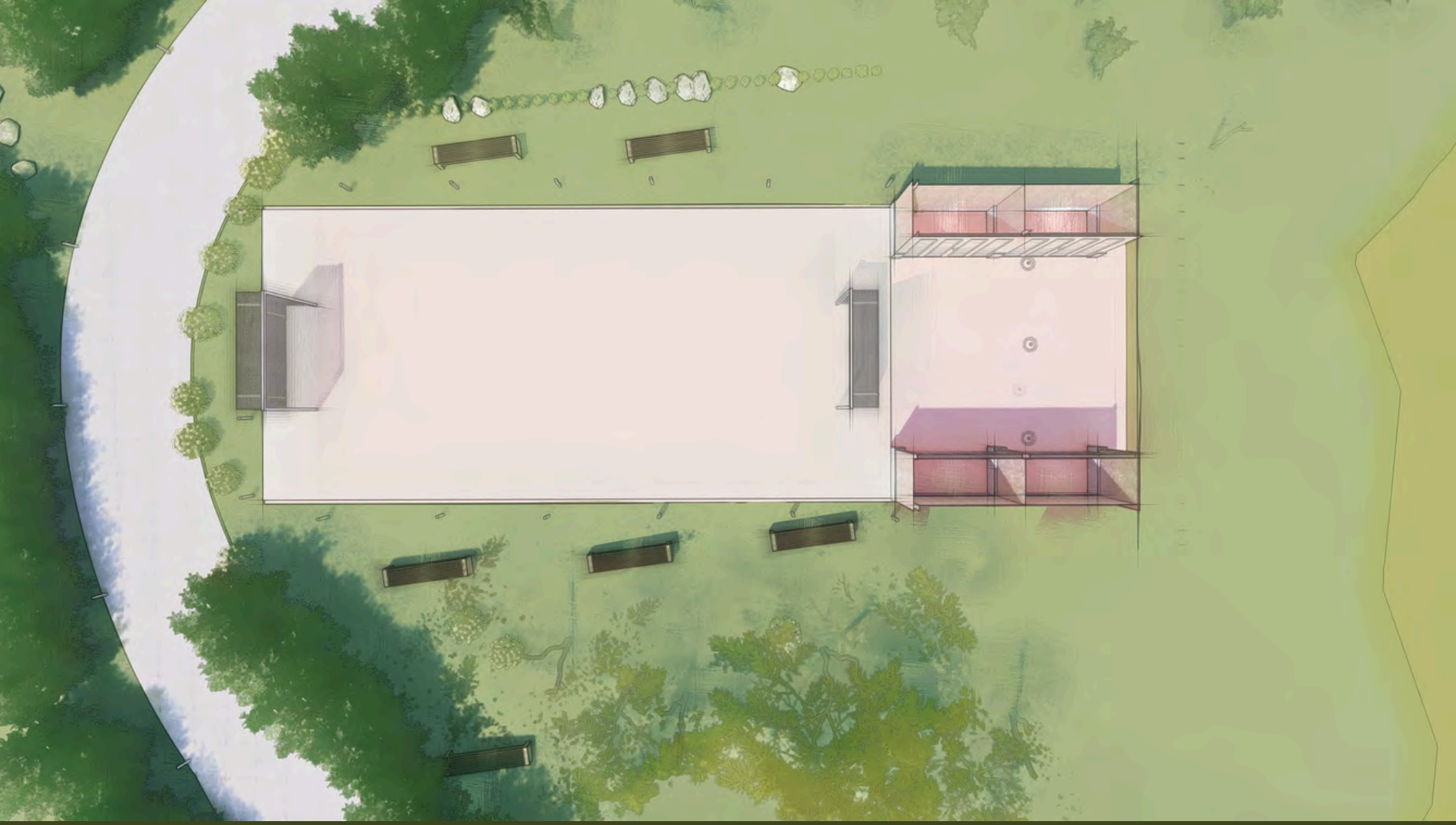
1 - Parking
2 - Arrival area (covered)
3 - Production and recreation area
4 - Café with terrace
5 - Existing infrastructure (proposed renovations)

Parking & Arrival Areas

The objective is to establish clear and organized entry points for visitors. This is the first point of contact for visitors.

Arrival Area (covered)

A central, covered gathering space designed as an entry point to La Papaya, where visitors are welcomed to the community. The space can be used for storytelling about La Papaya, ceremonial or cultural events or for receiving institutional partners and hosting events.



Production & Recreation Area

A multifunctional covered space supporting both production drying spaces, storage and a soccer field for recreation.

Coffee Shop & Small Kitchen Space

The objective is to develop a central hospitality space that anchors the visitor experience.

Coffee Shop & Small Kitchen Space

This allows a coffee service area for visitors with a small kitchen to support food offerings. The space would be equipped with an espresso machine and coffee shop equipment to support espresso based menu as well as pour overs. There would be seating areas for rest and interaction, and a small retail space for local product offerings.

Coffee Shop & Small Kitchen Space

Inside the coffee shop there are multipurpose areas that can be used as seating areas for customers or a place to host multiple activities such as training sessions or community meetings.

Cupping Area

This area from existing infrastructure serves as a space dedicated for guided tastings. It has a flexible layout for different group sizes.

Lookout point

The lookout point is a designated space that creates a moment for visitors to pause, appreciate the landscape and connect with the territory of La Papaya. It offers a space for visitors to take photos and document their visit.


La Paperra

Invitation for Collaboration

An invitation to help shape a future where coffee becomes a driver of pride, opportunity, and lasting impact.

The Tourism & Coffee Experience Program represents an opportunity to support a model of development that is community-led. This program builds on the strengths of a community of established production systems, agricultural knowledge, and a collective structure through its association. These foundations come together to create a meaningful experience and sustainable opportunities.

This initiative contributes to:

- The development of locally aligned tourism
- New income streams and employment opportunities
- Strengthening of regional identity through coffee

This program invites partners to be a part of a process of a model that is intentional, community-driven, and grounded in local knowledge.

Let’s shape the future of coffee together!