CRITIQUE of ANTHROPOLOGY

Critique of Anthropology
2023, Vol. 43(3) 231–251

DOI: 10.1177/0308275X231194253
journals.sagepub.com/home/coa
Sage

Fostering sustainability through environmentally friendly coffee production and alternative trade: The case of Café Orgánico de Marcala (COMSA), Honduras

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Abstract

Coffee has been a focal commodity for efforts to promote sustainability and social justice through alternative trade arrangements. Certifications such as Fairtrade have promised better prices, fair labor practices, environmental sustainability and improved livelihoods for small-scale coffee producers. A growing literature has examined alternative trade outcomes, but it remains an open question whether certifications help producers and their organizations improve livelihoods and conserve the environment. This study examines Café Orgánico de Marcala, SA (COMSA), which operates on principles of sustainability that emerged in conjunction with certifications. COMSA supports organic production through education and practices that integrate biodynamic principles, indigenous knowledge, and experimentation. COMSA has used fair trade premiums to build a multilingual school and start a recycling program, among other projects. Members and leaders acknowledge that problems exist yet point to progress. This ethnographic research uses grounded theory to examine COMSA's approach to sustainability, its successes, and ongoing challenges.

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Keywords
alternative trade, certifications, climate change, coffee, gender equity, Honduras, Latin America, sustainability

Introduction

Coffee production has a long history of environmental destruction, exacerbation of socioeconomic inequities and labor exploitation. Expansion of coffee production has been a major driver in the clearing of tropical montane forest and biodiversity loss globally (Baker, 2019; Jurjonas et al., 2016; Philpott et al., 2008; Tscharntke et al., 2011), which continues today as climate change is warming lower slopes and pushing producers of high-quality coffee to higher elevations. Historically, colonial governments' ambitions for wealth from coffee trade helped to incentivize the subjugation, enslavement, and displacement of original, pre-colonial populations to work on coffee plantations, undermining local cultures and economies (Clarence-Smith and Topik, 2003). As colonialism faded to post-Independence governments, inequities continued, and local peoples were compelled – or opted – to adopt coffee production under political economic contexts and market arrangements that often perpetuated power relations established under colonialism (Williams, 1994). Whatever the mechanism, the spread of coffee across forested tropical landscapes under market-driven incentives generally weakened community-based governance and traditional livelihoods of indigenous peoples, whose impacts on the natural environment tended to be less destructive than those of profit-oriented arrangements. The legacies of colonialism endure today in the labor arrangements and global market structures of coffee production and trade. It remains the case that coffee pickers are among the poorest paid manual laborers on the planet, and smallholder coffee producers often live in poverty (Tucker, 2017). Global processes of vertical integration have solidified the control of transnational corporations over international coffee value chains while offloading costs of warehousing and in-country transportation to producing countries (Daviron and Ponte, 2005). In a typical year, market prices for conventional coffee barely cover smallholder producers' costs.

In this context, this case study explores how one producer-owned coffee enterprise, Café Orgánico de Marcala, Sociedad Anónima (Organic Coffee of Marcala Corporation – hereafter COMSA), has endeavored to practice environmentally and economically sustainable coffee production that provides a secure and healthy livelihood for its members. A central part of its approach has been adopting certifications that promote environmental conservation, fair wages, good labor conditions, and gender equity. It has gone further than many of its peers by incorporating education, training in organic methods and nutrition, experimentation with biodynamic agriculture, and a holistic approach toward livelihood security, environmental conservation and human health. Its efforts have been recognized internationally, including through a vignette in the 2015 annual report of Fairtrade International (2016). This study explores COMSA's advances, shortcomings, and conundrums, as it aims for sustainable and equitable coffee production in association with internationally recognized certifications.

Certifications and small-scale producers

Coffee producers have long endeavored to obtain fairer market conditions. One of the world's most influential alternative trade organizations, Max Havelaar, formed in the Netherlands in 1988, after a group of smallholder coffee producers in Chiapas, Mexico, sought assistance to obtain better prices by marketing coffee directly (Martínez-Torres, 2006). Coffee remains among the best-known and most valuable commodities sold in alternative trade markets. Today, numerous alternative trade organizations and certifications promise fairer trade and social justice, with Fairtrade International and its counterpart Fairtrade Labeling Organization, among the largest. Many others emphasize organic and environmentally friendly practices (e.g. Rainforest Alliance) to counteract the destructive impacts of conventional coffee production on forests, wildlife, and water resources. Niche labels have also emerged. For example, Con Manos de Mujer (With Women's Hands), was created by women coffee producers to counteract persistent gender inequities, and the Small Producers Symbol promotes organizations whose membership is 85% or more small-scale producers.

Despite their worthy goals, certifications have sparked debates. Certain theorists have been scathing in their assessments. Sylla (2014), characterized fair trade as a scandal of "marketing poverty to benefit the rich." Pratt (2007: 286), synthesizing Graeber (2001, 2005) asked "How and why do consumers in a capitalist society attempt to gain access to values that are defined in opposition to monetary value precisely through the spending of money?" This question aptly applies to certifications, which expect consumers to pay more for goods that meet non-monetary goals such as fair labor practices and environmental sustainability. But for most small-scale producers, what matters is whether certifications provide better prices and improve livelihood security, given market conditions in which they can only control the quality of their product and its non-monetary attributes.

Case studies indicate that certifications can stabilize income for coffee producers by providing better prices, especially when conventional markets experience downturns (Jaffee, 2007). Working in Uganda, Chiputwa et al. (2015) discovered that Fairtrade increased coffee farmers' incomes by 30%, but farmers with Rainforest Alliance showed no income gains. In Guatemala, Lyon (2011) found that Fairtrade offered benefits to coffee-growing communities, even though the outcomes fell short of achieving equity and secure livelihoods. For certified coffee producers in Mexico, shared struggles with economic precarity and unrealized hopes for social justice strengthened partnerships among producer organizations and between their members, rather than with buyers and global businesses (Lyon, 2021). A systematic review of 151 studies found consistent evidence that Fairtrade increased smallholder producers' income, well-being, and resilience (Jodrell and Kaoukji, 2022: 12). The analysis revealed support for Fairtrade improving labor conditions, increasing benefits for smallholder producers, and strengthening their organizations. Encouraging evidence also emerged that Fairtrade contributed to gender equity, better agricultural productivity, and capacity-building, but data quality was inconsistent. Crucially, studies of hired farm workers reveal little or no difference in their wages on certified versus non-certified

farms (Jodrell and Kaoukji, 2022; Meemken et al., 2019; Oya et al., 2018). Overall, studies lack evidence that certifications lift people out of poverty (Jodrell and Kaoukji, 2022).

It can be difficult to ascertain whether differences between certified and non-certified producers can be attributed to certification. Moreover, local and regional contexts influence certification outcomes (Chiputwa et al., 2015; Oya et al., 2018). Work in El Salvador identified many barriers for smallholders to gain Fairtrade certification, ranging from certification costs to state policies (Tellman et al., 2011). Fairtrade has reported wide variation in outcomes for smallholder coffee organizations. For 2013–14, some organizations reported no Fairtrade sales; others sold 90% of their production to Fairtrade buyers. On average, 28% of Fairtrade certified coffee obtained fair trade prices (Fairtrade International, 2016: 54–6). Disconcertingly, many certified coffee organizations struggle to find buyers who pay the higher prices expected for certifications (Fairtrade International, 2016). Additionally, certified producer organizations experience difficulties if conventional prices rise above the Fairtrade minimum. When members sell to conventional buyers offering higher prices, cooperatives may not meet quotas to fulfill Fairtrade contracts (Cycon, 2005). The problem has bankrupted some cooperatives. Fairtrade International is addressing this problem by increasing its minimum prices as of August 2023 (Fairtrade International, 2023).

Progress toward environmental conservation is also uncertain. Glasbergen (2018) found that certifications may encourage sustainable practices, but do not seem to encourage systemic change. In the biodiversity hotspot of the Western Ghats of India, researchers found that many coffee farmers adopted Rainforest Alliance certifications under environmental sustainability incentives, however, they continued "business as usual" practices (Bose et al., 2016). Jodrell and Kaokji (2022) found some indications that Fairtrade certification encourages environmental sustainability, but the data was inconclusive.

Challenges facing coffee producers

Coffee farmers struggle to make a living in the face of volatile coffee prices, livelihood insecurity, coffee pests and diseases, environmental degradation, and changing weather patterns (Tucker et al., 2010). In Honduras, these stressors have been exacerbated by economic crises, political instability, increasing violent crime, and corruption (Reichman, 2022). Climate models predict that changes in temperature and precipitation patterns in Mesoamerica will reduce the area suitable for coffee production by 30% during this century (Ovalle-Rivera et al., 2015). Recent years have brought severe weather events and increased damage from coffee pests and diseases, such as coffee leaf rust (*Hermiliea vastatrix*) and coffee berry borer (*Hypothenemus hampei*), which have been spreading with warmer temperatures associated with climate change (Jaramillo et al., 2011; Magrach and Ghazoul, 2015). Seeking to adapt, many small-scale Honduran coffee farmers have joined coffee cooperatives and associations, pursued new techniques, adopted environmentally friendly methods, and acquired certifications in hopes of obtaining higher coffee prices, improving quality, and accessing resources to mitigate damage from pests, diseases and severe weather. Creative approaches, such as the farmer-to-farmer

(*campesino a campesino*) movement bring farmers together to help each other solve problems (Holt-Gimenez, 1996). COMSA offers an example to explore whether proactive commitments to sustainable practices and certifications support better incomes, livelihoods and environmental sustainability while confronting multiple stressors and challenges.

Café Orgánico de Marcala

Located in southwestern Honduras, the municipality of Marcala is part of the Department of La Paz, a historically rural and marginalized area known for its Indigenous Lenca heritage, mountainous topography, subsistence production of maize and beans, and small-scale, family-based coffee production. The Lenca language has been lost, but certain agricultural traditions, beliefs, and practices can be traced to Lenca culture (Chapman, 1992). In 2022, Marcala had a population of 20,415. While most people live in or near the town, small communities and farms are spread out across municipality's 22,100 square kilometers (Alcadía Municipal de Marcala, 2023). Coffee production is the main economic activity, and over ten organizations are involved in coffee production and processing, including COMSA. Marcala offers a colorful street market, and hosts an annual fair to celebrate its coffee and artisanal goods (crafts, honey, herbal treatments, and more).

COMSA formed on 13 December 2001 with a group of small and mid-sized Marcala coffee producers who shared frustration with market conditions. At that time, they were confronting the coffee crisis of 2000 to 2003, when global coffee prices fell to 100-year lows (adjusted for inflation) (Varangis et al., 2003). The group decided to form an organization dedicated to obtaining better prices and more secure livelihoods. Many of the original 64 members had experienced the collapse of a national cooperative in the 1990s, followed by the failure of two regional coffee cooperatives. In this context, they chose to become a member-owned corporation (Sociedad Anónima). This legal status offers credit and national support unavailable to cooperatives. Members invest in the corporation through buying stock, then share the costs of losses or gains from profits proportional to their holdings. Subsequently, this decision has created recurrent difficulties for Fairtrade certification. As a fundamental criterion, Fairtrade requires equal representation and equitable benefits. COMSA, like other member-owned coffee corporations in Honduras, adjusted its internal arrangements to assure equal representation with one vote for each member. In 2008, COMSA gained Fairtrade certification, which has proven to be the most beneficial of its certifications.

Methods

This case study research on COMSA is part of a larger comparative study of producer-owned coffee enterprises in southwestern Honduras. Following a grounded theory approach (Bernard, 2017; Charmaz, 2001), data collection methods include interviews, participant observation, and archival research. The project uses snowball methods to identify coffee producers, cooperatives, associations, and related organizations. Additionally, interviews have been conducted with coffee exporters, government entities, and

development agencies working with coffee producers, and addressing the challenges confronting the Honduran coffee sector. I first visited COMSA in 2019. Although the Covid-19 pandemic interrupted fieldwork, I have returned to Marcala five times to continue learning about COMSA's experiences. The research discussed here is based primarily on 23 interviews and numerous informal conversations with COMSA members. While all were coffee producers, many also served COMSA as employees, committee members, administrators, or leaders. In addition, I conducted participant observation with COMSA members on their coffee farms and visited the organization's offices, coffee-processing facilities, and projects implementing socioeconomic, educational, and environmental sustainability initiatives. I gained broader context and comparative perspectives through discussions with coffee buyers, exporters and representatives of coffee-related non-governmental organizations (NGOs) and government programs.

COMSA principles, concepts and practices

As COMSA developed as a coffee-producing enterprise, discussion among its leaders and members coalesced around a set of principles, commitments and projects that together distinguish COMSA from other coffee producer enterprises in Honduras. The principles reflect the values and ideals of COMSA leaders and members, as well as synergy with certifying entities. These principles include operational and administrative responsibility; integrity; commitment to equity; solidarity with economic, social and political approaches that support development; fidelity to its professed values; commitment to provide services that meet its members' needs; ethical action; transparency; and social responsibility to promote sustainable development for its members, the broader community, and the nation (COMSA, 2022). These serve as foundational and aspirational guidelines.

In practice, the principles find expression in COMSA's approach to coffee production, its commitment to certifications, and projects to support members and the broader community. Currently, COMSA carries nine certifications (Table 1). Fairtrade International and Starbucks CAFÉ Standards offer separate certifications for organic and conventional production. In addition to certifications for socially and environmentally responsible coffee production, COMSA has certifications for the environmental sustainability of their wet-processing coffee mills, and chain of custody certification for their marketing and sales. COMSA policy mandates that members certify their entire farms under the same certifications. Thus members cannot divide their parcels of coffee between conventional and organic certification, and they must meet the standards of their strictest certification label to avoid cross-contamination of the product (C. Castillo, COMSA Certifications Director, 11 March 2023). COMSA has separate processing facilities for conventional coffee to assure that no mixing contaminates organic coffee.

COMSA has a certification committee that oversees internal monitoring and works with its technicians and producers. All COMSA's farms are visited at least once a year to verify compliance with each farm's certifications. Typically, technicians are adult children of members. In the early years, technicians acted as rigid enforcers, which discouraged some farmers. After listening to producer feedback, COMSA recognized that the process required better training. In particular, illiterate farmers needed to learn how to read so that

Table 1. COMSA certifications.

Certification labels	Year certified	# of certified producers	% of total membership	Third-party auditor/ certifier(s)
Fairtrade (FLO)	2008	1694	100.0%	FLOCERT, Mayacert, IMOCert
Conventional		705	41.6%	
Organic[a]		989	58.4%	
Rainforest Alliance (RFA)	2021	597	35.2%	MayaCert or ImoCert
Japan Agricultural Standards (JAS)	2021	597	35.2%	MayaCert or ImoCert
Fair for Life (France)	2019	1194	70.4%	ECOCERT
Starbucks CAFÉ practices:	2014	997	58.9%	MayaCert or ImoCert
Conventional		704	41.6%	
Organic		293	17.3%	
Con Mano de Mujer[b] (With Women's Hands)	2011	184	10.9%	MayaCert or ImoCert
Bird Friendly (Smithsonian)	2008	392	23.1%	MayaCert or ImoCert
Small Producers Symbol[c]	2004	296	17.5%	MayaCert
Organic Korea	2022	130	7.7%	NAQS[d]

Source: C. Castillo, Director, COMSA Certification Office, 11 March 2023.
[a]597 certified by MayaCert (https://mayacert.com); 392 by IMOCert (https://imocert.bio/).
[b]For women coffee producers.
[c]Small producer organizations composed of at least 85% smallholders; certified by MayaCert.
[d]National Agricultural Products Quality Management Service of Korea (NAQS).

they could understand labels and printed instructions. COMSA's technicians switched from delivering warnings to conversing supportively. When a shortcoming is discovered, technicians talk with the farmer to understand the reasons. Then the technician works with the farmer to plan steps to meet the criteria (ID#4 Experimental Farm Director, 7 September 2022). Even so, the number of producers certified for each certification fluctuates. Some producers become disillusioned, but others become interested in one or more certifications, especially since COMSA offers higher prices for certified coffee (ID#9 Certification Staff, 7 September 2022).

Each label requires annual third-party monitoring by a recognized certifying organization. FLOCERT certifies Fairtrade International compliance. Most certifications use MayaCert and IMOCert (formerly BioLatina) to certify and audit organic certifications. Mayacert also certifies conventional production. International certification teams visit a randomly selected sample of farms to assess compliance. The sample size is typically the square root of the total number of the given label's certified farms. Producers are not given advance notice. If auditors find a minor infraction (e.g. improperly discarded garbage), the producer will be warned and revisited the following year. For a major infraction, such as toxic agrochemical use, the producer will be decertified for three years or more. In

general, about 5–10% of the farms visited each year have a minor infraction, and about 1% are decertified due to a major infraction. Recently, a farm was decertified when auditors found discarded toxic agrochemical containers on the edge of the property. The producer insisted that the containers had been thrown into his farm by a jealous neighbor, but this explanation was rejected (C. Castillo, Certifications Director, 11 March 2023).

In addition, COMSA's green coffee qualifies for the Marcala Appellation of Origin (hereafter DO for Denominación de Origen in Spanish). While other labels certify farms according to practices, the DO label certifies that the coffee is produced in the Marcala region and qualifies as specialty coffee (minimal defects and a cupping score of 80 or more on a scale of 100 as determined by blind testing with certified coffee tasters). Given that any farm produces some subpar beans, producers submit only their best coffee for DO testing (Personal communication, DO Representative, 10 March 2023). COMSA intends to acquire more certifications, and is applying for Kosher, Demeter, and Carbon Footprint certifications to expand its markets (ID#9 Certification Staff, 7 September 2022).

COMSA encourages organic methods, and initially required them. Organic coffee is associated with better flavor profiles while supporting environmental sustainability. However, organic production and certification present many challenges. At first, COMSA members lacked experience with organic production. One founding member-leader recalled:

> We didn't have an understanding of organics, that is, we didn't have know-how, we only knew not to use agrochemicals and we had to use compost, but we didn't know how to do it well. […] (But) we had the good fortune of insisting on organic agriculture, on environmental responsibility, on social responsibility, which we already felt. But we didn't know how. (ID#1, COMSA Leader, 1 August 2019)

They attempted to switch abruptly from conventional to organic production. When their coffee bushes were deprived of accustomed chemical inputs without proper application of organic fertilizers, productivity fell dramatically. Nearly 20% of the original members withdrew following production losses (ID#6 COMSA Founding Member, 7 September 2022). The remaining members decided to welcome producers using conventional methods. As one founding member related, "We wanted to grow, and we wanted to be sustainable. And we wanted to organize more people, so we changed a bit and opened the doors, we said okay, the individual who comes can be a conventional producer, if he is honest, he can join COMSA" (ID#2 COMSA Leader, 1 August 2019). This philosophy supported COMSA's expansion to 1694 current members. To join COMSA, a coffee producer must sell coffee to COMSA for two consecutive years and have rights to land planted in coffee. Although some lack formal land titles (a long-standing issue for many rural Hondurans with limited resources), COMSA recognizes locally documented use rights (ID#6 COMSA Administrator, 5 February 2020).

The initial problems with organic production compelled members to seek more training and education. They sought workshops on organic farming and agroforestry, and discovered the writings of Rudolph Steiner (2005 [1924]) on biodynamic agriculture. They learned to make high-quality organic compost, and to understand their farms as an ecosystem. As a result of these experiences, COMSA instituted a four-year stepwise

transition that gradually adapts conventional coffee bushes to organic treatments: Year 1: 70% conventional inputs using Fairtrade International approved "green" and "yellow" listed agrochemicals, and 30% organic fertilizers and treatments. Year 2: 50% conventional, 50% organic. Year 3: 30% conventional inputs, 70% organic. Year 4: fully organic inputs (ID#9 Certifications Staff, 7 September 2022). The process is supervised by COMSA technicians and includes testing for prohibited agrochemicals.

As COMSA's understanding of organic agriculture developed, it identified *the five "Ms"* (in Spanish), as key components for organic coffee production and a healthy environment:

1. Organic *M*atter (*materia orgánica*)
2. *M*inerals (*minerales*)
3. *M*icroorganisms (*microorganismos*)
4. Living *m*olecules (*moléculos vivos*)
5. *M*ind (gray matter) (*materia gris*)

Their practices incorporate the first four "Ms" for organic coffee production. "Mind" – thinking and learning – guides use of the material "Ms." In synergy with the pursuit and adoption of a broader COMSA philosophy, they also emphasize:

- *Biodynamic agricultural methods and experimentation* to improve quality and develop climate-change-resistant and pathogen-resistant coffee farms.
- *Adherence to fair trade principles and values* in operating the association, including democratic governance, transparency, a living wage, and use of Fairtrade premiums to benefit the community.
- *Autonomy from imports*: A commitment to rely as much as possible on domestic products and reduce dependence on imported goods. For example, they produce organic fertilizers and treatments to control coffee pests and diseases. This approach reduces their costs, while incentivizing research and experimentation to develop appropriate technology that fits their needs.
- *Education and training* for coffee producers and future generations, their technicians and staff, and dissemination of their knowledge to other coffee producers and organizations.
- *Healthy diets* based on local organic foods while avoiding processed foods, such as potato chips and sodas. This principle arose as a response to increasing rates of diabetes, hypertension, and obesity in their community.

With these principles, concepts, and practices, COMSA has become a major smallholder coffee organization in Honduras.

COMSA projects and the Fairtrade premium

With Fairtrade certification, COMSA's Fairtrade sales qualify for the social premium, which earns an additional 20 cents for each pound of green coffee purchased by Fairtrade

buyers (Fairtrade International, 2018). The social premium has provided major funding for COMSA's initiatives and has created a strong motivation to maintain Fairtrade certification. For the 2020–21 harvest season, COMSA's Fairtrade premium totaled 57 million Lempiras (approximately US $2.3 million at 2021 exchange rates). During annual assemblies, members discuss how to allocate the premium among community projects (discussed below). They make decisions by majority vote. In addition, members receive a bonus from the social premium in proportion to the amount of coffee that they sell through COMSA.

Providing access to credit for members

COMSA founded a microcredit bank – BANCOMSA – to serve COMSA members, many of whom are ineligible for loans from commercial banks due to lack of formal land titles or other constraints. Access to credit allows smallholder coffee producers to invest in their farm, tools and equipment, or home improvement projects, such as cement to upgrade from a dirt floor in their house. The goal is to provide members with financial resources to improve their agricultural production and quality of life.

Establishing La Fortaleza experimental biodynamic farm

COMSA's experimental farm, established in 2012, serves to test approaches for improving soils, coffee disease resistance, biodiversity conservation, and climate change adaptation. La Fortaleza includes an herbarium for native plants and traditional coffee varieties, and a conservation area. Its tree nursery provides free native shade trees, fruit trees, and nitrogen-fixing species to enhance shade management and non-timber forest products on coffee farms. Native bees are highly valued for their pollination services; hives are located in a sheltered area. A laboratory tests the efficacy of organic fertilizers and natural treatments for plant diseases and pest control applying the "five Ms." The laboratory staff have backgrounds in chemistry, botany, and pharmacology. Using sophisticated equipment, they evaluate soil composition and pharmacological activity of local fungi. A few adventuresome thinkers (about 15 individuals) have studied Eastern philosophies of health and pranic energy. With this inspiration, the farm staff built an experimental rock arrangement to improve energy flows and plant health (ID#4 Experimental Farm Director, 2 August 2019). This openness to new ideas, experimentation, and integration of diverse methods characterizes the COMSA philosophy toward sustainability and well-being.

Offering a certificate in organic agriculture "Pata de Chucho"

COMSA has developed a certificate in organic agriculture and related topics, through a week-long training program offered for COMSA members, students, and other interested individuals, who can enroll to learn more about COMSA's practices and principles. Topics include organic production techniques, composting, improving soil fertility, integrated pest management, financial management, and healthy diets (ID#1, COMSA Leader, 1

August 2019). Local training includes activities at COMSA's experimental farm. Through the program, participants learn from experienced COMSA members and are encouraged to implement methods on their own farms. One of the segments presents the risks of consuming processed foods and discusses healthier alternatives. Taught by COMSA members whose health has been improved by changing their diets, this segment has increased nutritional awareness among COMSA members. The model of member-to-member teaching and testimonials has been more effective for promoting organic practices and healthy diets than presentations by outside experts. The training encourages participants to share their knowledge with others. Inspired by the example of friendly dogs that walk all over greeting everyone and leaving behind their pawprints, COMSA named the program "Pata de Chucho" ("Dog's Paws"). This training has been offered around Honduras and beyond, including the Dominican Republic, Ecuador, Guatemala, Mexico, and Peru, at the invitation of coffee producer organizations interested in organic methods (ID#4 Experimental Farm Director, 7 September 2022). Altogether, 56 full trainings have been offered since its inception (ID#7 Pata de Chucho Trainer/Multiple Roles, 14 January 2023).

Promoting waste reduction, recycling and creating a solid waste processing facility

In 2017, COMSA collaborated with a local coffee cooperative to start a solid waste collection and recycling operation in Marcala. Each contributed part of their Fairtrade Social Premiums. The town faced increasing problems with litter and inadequate garbage disposal. People dumped trash in rivers and open areas, creating a public health problem and contaminating water. The project, "Let's Clean Up Marcala" (Juntos Limpiamos Marcala) taught students about recycling, starting in three of Marcala's primary schools. The project established three recycling posts, purchased garbage trucks, and created the Pro-sustainability Waste Processing Company (Deshechos Pro-Sostenibles, or DPS) with the first waste processing facility in the region (ID#7 DPS Board Member/Multiple Roles). Employees sort recyclables, select reusable or saleable items and identify what can be "upcycled." Metals and certain plastics are sold to interested businesses. To deal with medical and toxic waste, COMSA purchased an industrial, emission-free incinerator from the UK. It proved difficult to process all the plastic waste, especially bags, food containers and packaging. The General Manager recalled, "We asked ourselves, how can we use what no one wants?" The staff identified equipment that could transform plastic waste into high-quality, wood-like fence posts thus "closing the loop for a circular economy" (ID#22 DPS General Manager, 11 March 2023). In 2020, COMSA privatized DPS at the request of its workers, all young adults. The seven worker-owners aim to create a profitable business, reduce garbage through education, and incentivize recycling. They offer waste reduction presentations and nutritional consultations in schools, reasoning that better diets will reduce packaging waste from junk foods. Approximately 15 individuals and 4 women's groups (48 individuals) collect and sell recyclables to DPS, which sends garbage trucks for pick-ups. DPS also supports school gardens following a COMSA mantra,

"When you eat well, you think well" (ID#22 DPS General Manager, 11 March 2023). Since my first visit to Marcala, a major roadside garbage dump and litter have been dramatically reduced. Two nearby towns, La Esperanza and Chinacla, have started their own waste processing programs following Marcala's example. Currently, DPS confronts a new challenge: increasing processing capacity as collection of recycling and waste expands (ID#7 DPS Board Member/Multiple Roles. 11 March 2023).

Founding the COMSA International School

Improving educational opportunities for smallholder producers' children has been an ongoing commitment for COMSA. In 2014, COMSA founded the COMSA International School, building on previous attempts by Marcala parents to run a bilingual school. Largely supported by Fairtrade Social Premium, the school provides pre-K-12 education for 182 children (COMSA, 2022). Its curriculum integrates the ideas of Glenn Doman, Maria Montessori, and Waldorf Education to develop students' intellectual curiosity, creativity, and critical thinking skills for lifelong learning. The faculty includes internationally trained teachers. When I visited in Janaury 2020, the students spoke to me in English, French, and Japanese (key languages of COMSA's buyers) as well as Spanish.

Gender equity initiatives

In recent years, COMSA has become supportive of women as coffee producers and leaders. COMSA's interest in gender equity has been spurred by certifiers and donors who offer incentives and programs to strengthen women's participation. Currently COMSA has 435 women producers, representing 26% of its membership. About 70% of these women are married to COMSA members (ID#10 Committee on Gender President, 10 September 2022). Seven elected women lead the Committee on Gender; all COMSA's women are encouraged to participate. COMSA offers leadership training for women as well as men, to help participants develop self-respect, confidence, and practical leadership skills and principles, such as transparency (conversations with COMSA women, 7–9 September 2022). Currently 57 women are participating in a pilot project, "Way to Go" (known by its English title) with German funding to improve coffee quality and productivity. The participants create plans for improving production, such as replanting older plantations, adopting disease-resistant varieties, and improving processing methods to produce higher quality coffee. More women have been participating in "Pata de Chucho" training, and now use soil erosion barriers, organic composting and treatments, and shade tree management (ID#10 Committee on Gender President, 8 September 2022). The president noted:

> In our case, we are working very hard on the issue of gender [equity] with women in the Gender Committee. It is very nice because for a long time it [this issue] existed, but the organization wasn't working as hard as now, considering that all this can strengthen and support empowerment that has been lacking, especially for women. In general, it is almost

> always the men in the organization that handle everything. But now we [women] are managing our coffee parcels very well. (ID#10, 8 September 2022)

Adoption of organic and environmentally friendly practices

To date, eleven COMSA producers and the director of La Fortaleza Biodynamic Farm have shared their organic, environmentally friendly practices during farm visits and interviews. All but one had taken the Pata de Chucho course, and the woman who had not done so had learned how from her husband, who had taken the course. Five practices associated with organic coffee farming appeared frequently: use of organic fertilizers/compost/soil amendments; soil erosion barriers; shade management; planting more shade trees; and diversifying the farm (Table 2). While all these farms produced crops in addition to coffee, such as fruit (e.g. citrus, bananas, avocado), not all farmers viewed this as diversification. Marcala farmers traditionally plant coffee under fruit trees for household consumption and local sale. Therefore diversification means adding a market crop or new activity to increase household income. One farmer planted cardamom, another was experimenting with turmeric, and another managed native grasses for fodder and sale. Two producers kept bees for pollination services, native bee conservation, and honey. Producers spoke in detail about the use of organic fertilizers and soil amendments. They avoided agro-industrial pesticides and herbicides to maintain organic certification. The Office of Certifications noted that the EU prohibited RoundUp and had rejected a COMSA shipment found with traces. Since then, COMSA has been very diligent in testing for and preventing RoundUp use (ID#9 Certification Office Staff, 7 September 2022). Two additional practices were mentioned: replacing plants and planting disease-resistant varieties. These activities occur as needed, usually after losses caused by bad weather, infestation, or declines in elderly plants.

In addition, six of these producers commented that they had learned about nutrition from COMSA and had reduced consumption of junk food. Three mentioned that their children attended the COMSA International School. One of the women noted that COMSA provided her children with English tutoring and music lessons, because they lived too far away from the school (ID#11 Producer, 9 September 2022).

Nearly all producers mentioned efforts to mitigate climate change and support environmental conservation. All conserved part of their land in forest. Two mentioned protecting springs and streams. After experience with drought, another producer had started digging small sinkholes around the farm to retain soil moisture. To reduce water use, she adopted a processing method that does not need water to separate the cherry pulp from the bean. She also mentioned burying crystals strategically around her farm to improve energy flows, reflecting interest in pranic energy (ID#7 Producer/Multiple Roles, 8 September 2022, 11 March 2023).

Another woman, interested in eco-efficient farming, reported that her household used solar panels for household electricity, water-efficient coffee processing, and machinery that did not require fossil fuels. She and her daughters planted shade and fruit trees to attract migratory birds, an interest that grew with Smithsonian Bird Friendly certification. They conserved half of their land in forest (ID#16 Producer, 10 March 2023). The family

Table 2. Sustainability practices on COMSA farms.

Producer ID# (N = 11)	Organic fertilizers, compost, treatments	Soil erosion control	Shade management	Plant shade trees	Diversify the farm	Replace plants	Plant disease-resistant varieties	# practices by producer
Experimental Farm	X	X	X	X	X	X	X	7
5	X	X	X	X	X	—	X	6
6	X	X	X	X	X	—	—	5
7	X	X	X	X	X	X	X	7
8	X	—	X	X	—	—	—	3
10	X	—	X	X	X	—	—	4
11[a]	X	—	X	X	X	—	—	4
12 and 13[b]	X	X	X	X	X	X	X	7
14	X	X	X	X	—	—	—	4
16	X	X	X	X	—	—	—	4
17	X	X	X	X	—	—	—	4
Frequency	11	8	11	11	7	3	4	

[a]Did not take the Pata de Chucho course.
[b]Two producers (mother and adult son) interviewed together on family farm.

had participated in a climate change mitigation pilot study, which measured carbon emissions using an assessment tool developed by Coop Coffees (a direct trade buyer that pays farmers a bonus for climate change mitigation practices). Their farm demonstrated negative carbon emissions (absorbing more carbon than it emitted) (ID#18 Technician, 10 March 2023).

One dynamic producer credited COMSA with changing his life. He had grown up homeless and uneducated, working as a farmhand until offered a "lease to buy" for some degraded land. Applying COMSA practices, he now produces specialty coffee. Where he reforested, a new spring flows. In his simple adobe home, he acknowledged its earthen floor and explained that he invested in his land and his children (recent college graduates), not material comforts (ID#5 Producer, 5 February 2020).

The producers interviewed for this research expressed commitment to organic methods and conviction in the environmental benefits. They alluded to connections to their community and their land – a sense of place – that gave meaning to their lives. However, they recognized that organic practices required a lot of labor. One producer, a young mother, noted that she had difficulty keeping up with all the tasks necessary for an organic farm, especially adequate applications of organic fertilizer. Her farm had recently suffered a severe outbreak of coffee leaf rust, which she had never experienced before (ID#11 Producer, 9 September 2022). A producer who planted 200 trees every year reported that she often lost 50–75% of the new plantings during long dry seasons (ID#16 Producer, 10 March 2023). When asked about general compliance with organic approaches, a Pata de Chucho teacher responded that about 75–90% of the practices were implemented by COMSA's certified organic farmers, but some people were not responsible (ID#7 Pata de Chucho Teacher/Multiple Roles, 9 September 2022). An agricultural outreach technician, who worked with COMSA farmers to educate on methods and assure compliance, noted that most organic farmers were reliable, and about 150 were being invited to join an expanded climate change mitigation project (ID#18 Technician, 10 March 2023).

To date, this research has involved only a small number of COMSA's members, and they are among the most engaged. They are unlikely to be representative. They try novel approaches, apply holistic and creative thinking, and tolerate difficulties. They exemplify commitment to sustainable coffee production despite its inevitable challenges.

Economic outcomes

Perhaps most important for COMSA's members is that they are receiving better prices for their organic coffee. Between 2016 and 2019, COMSA's members received prices that averaged 35% higher than organic coffee prices in the rest of Honduras. The better prices partly reflect high coffee quality. But they were also lucky. In 2016, a small US coffee roaster who bought COMSA coffee won the Super Bowl lottery to present a 30-second advertisement. In that advertisement, the roaster promoted his specialty coffee with bags of COMSA coffee with its trademark squirrel in plain sight. That year, their Fairtrade certified coffee sales more than doubled (from 90,000 to 200,000 export bags of green coffee weighing 100 pounds each). COMSA could meet the demand because they produced more organic and Fairtrade certified coffee than they had been able to sell at fair

trade prices. Since then, COMSA has built strong relationships with reliable buyers willing to pay premium prices (ID#1, 2, 3 COMSA Leaders, Joint Interview, 1 August 2019).

Challenges

Despite COMSA's successes and proactive efforts, it has faced many challenges. During their early years, they barely escaped bankruptcy after a particularly bad harvest and poor financial planning. That experience led to improved accounting methods and saving for bad times (ID#1 COMSA Leader, 1 August 2019). On three occasions, they were suspended from Fairtrade certification, and each time they made changes to regain certification through organizational adjustments, better technical assistance, and improved monitoring (ID#7 Producer/Multiple Roles, 9 September 2022). As indicated, the social premium has provided a strong incentive to maintain the Fairtrade certification. During the pandemic, they maintained their permanent staff, and provided food and medical assistance to people in need. However, they lost income due to lockdowns, transportation restrictions, and shipping delays. More broadly, the political economic situation in Honduras has been unstable and tainted by corruption. Under the administration of Juan Orlando Hernández (2014–22), gang violence, drug trafficking, and economic crises worsened. Severe weather events (including hurricanes Eta and Iota in 2019) weakened national infrastructure and damaged bridges needed to transport coffee to ports. Torrential rains associated with the remains of Hurricane Julia (October 2022) caused unprecedented flooding in Marcala and other parts of southwestern Honduras, damaging roads and coffee plants on the cusp of the harvest. In December 2022, a cold snap hit and damaged ripening coffee at higher elevations that produce some of the region's best coffee. Climatic, economic and societal insecurities have combined to augment outmigration from Honduras to the USA and neighboring countries (Reichman, 2022), exacerbating labor shortages, costs, and loss of skilled workers. Marcala has experienced less outmigration than other areas, likely due to the social support offered by its producer organizations (ID#1 COMSA Leader, 11 March 2023). Meanwhile, Fairtrade International has been pushing to lift wages for hired workers, such as seasonal coffee pickers. While many producers concur that wages for hired workers should be higher, they face economic constraints. Their incomes vary with fluctuations in coffee prices. Many organizations and their members carry debts from investments in necessary equipment, income shortfalls during low prices, and expenses to recover from extreme weather events. Since Honduras does not offer farm insurance, producers must cover damages through their own resources.

In 2021, Fairtrade International informed COMSA and other certified coffee corporations that they had to change their financial structure to assure that all members have the same level of investment and benefits (ID#1, COMSA Leader, 6 July 2021). Over two years, COMSA eventually reached an agreement accepted by the full membership. Fairtrade is evaluating COMSA's compliance. Some members have expressed frustration at the delay, which has cut the social premium by 50% until Fairtrade gives its approval (conversations with COMSA members, 7 September 2022–11 March 2023).

COMSA has also experienced internal disagreements regarding resource allocation, financial management, and nominations for leadership positions. Two knowledgeable women commented that COMSA has yet to place a woman in a leadership position, even though COMSA has women members who represent COMSA internationally and who have led other organizations (ID#7 Producer/Multiple Roles, 14 January 2023; ID#21 NGO Representative, 19 January 2023). Recently, differences of opinion compelled 14 individuals to leave COMSA. Four retired, and ten formed their own coffee producer association. The new organization aims to maintain COMSA's principles while emphasizing women's empowerment, improving efficiency, and fulfilling Fairtrade International's principles.

As in all organizations, not everyone is content or equally engaged. COMSA's founding families are among its most creative and active members, and they exercise greater influence than other members. Some members realize fewer advantages and little improvement in livelihood security, even though COMSA membership has improved their income. Members' experiences vary with their backgrounds, available resources, level of commitment, and factors beyond individual control. Power differentials and socioeconomic gaps, which broadly characterize Honduran society and exist in COMSA as well, create disproportionate challenges for farmers with the least land and few resources. Similar problems exist in many coffee organizations. A larger sample is needed to understand the degree to which COMSA's full membership perceives progress and benefits. Even so, COMSA has found success in providing education and training, obtaining above market prices for its members, encouraging environmentally friendly methods, and generating benefits for the broader community.

Closing thoughts

COMSA's experience dovetails with other studies showing that certifications can help increase producer income, improve livelihoods, support gender equity, and promote environmental conservation among producers with limited options. Market transformations, climate change processes, and evolving requirements set by certification labels pose ongoing challenges for COMSA, as do internal issues. But by developing their own philosophy of the "5 Ms," resisting dependence on imports, and drawing on the lessons of educators like Montessori and the biodynamic principles of Steiner, COMSA has taken steps toward self-sufficient sustainability. They have adapted ideas and local knowledge to fit their realities, and they are continuing to learn ways to grapple with challenges and address COMSA's shortcomings. Their approach emphasizes capacity-building, autonomy, and creativity, which counteracts narratives that have portrayed the people of the region and their indigenous heritage as backward.

COMSA's training inculcates shared ideals and practices among its members and encourages them to share what they learn with others, including members of other coffee organizations. At one point, as I interviewed three COMSA leaders, I asked if they were concerned about helping their competition. They responded that COMSA's approach is beneficial for Honduras, and they don't see other producer organizations as competition but as allies in the struggle to improve people's lives (COMSA Leaders #1, #2, and #3,

Joint Interview 1 August 2019). This attitude resonates with the philosophy of the *campesino a campesino* movement (Holt-Gimenez, 1996). One leader noted that it is better to have friends than competitors, and COMSA has many friends. He added:

> We want to be more responsible in caring for rivers, caring for forests. We want to generate evolution, not involution. We don't want to damage nature. We have learned to be a bit responsible. We know there is still a long road to travel. (ID#1, COMSA Leader, 1 August 2019)

As noted, certifications have not eliminated poverty or propelled systemic change toward a fairer world. But how reasonable are such high expectations, given entrenched inequities and resistance to meaningful change throughout the global system? Certifications alone are inadequate to effect systemic change, but in some cases can be leveraged constructively. COMSA provides evidence that viable approaches toward equity and sustainability exist even if participation and progress occur unevenly. Under certain conditions, these approaches can make beneficial differences in people's lives and a community's social-environmental well-being. Inevitably, attempts to create sustainable and equitable futures will encounter opposition from those who stand to lose power, and setbacks due to human shortcomings and shocks like hurricanes. More research is needed understand what conditions support the emergence of fairer, sustainable communities able to survive setbacks, and how such examples could apply toward systemic transformations.

Acknowledgements

The authors wish to express appreciation for the members of COMSA who kindly offered their time and shared their experiences during this research. Special thanks go to Eddil Benitez, Castulo Castillo, Sarahi Chavez, Ana Ruth Chicas, Alba Rosa Claros, Victor Contreras, Cristian Dubon, Joselinda Manueles, Willem Matute Funes, Rommel Melghem, Rodolfo Peñalba, Fredy Pérez, Linda Pérez, Efraín Urquía, Ronaldo Urquía, and the family of Finca La Colmena for sharing their experiences so generously. Catherine Tucker thanks the Fulbright US Scholar Program, which awarded a FLEX Fellowship for Teaching and Research that supported six months of research in total for this project, and the Department of Anthropology and the Center for Latin American Studies at the University of Florida for supporting an invaluable year-long sabbatical to continue fieldwork. Catherine Tucker is especially grateful to Dr. Michela Accerenzi of the ETEA Foundation, who introduced her to COMSA, and has generously shared extensive knowledge of coffee enterprises in Honduras.

Declaration of conflicting interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This work was supported by the Fulbright US Scholar Program.

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