

Characterization of Producer Institutional Arrangements in the Coffee Sector in Kenya and Policy Implications for Farmer Empowerment

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Abstract

The majority of coffee farmers in Kenya are members of coffee cooperatives. Studies on coffee farmers in Kenya therefore focus mainly on cooperatives. There are however cooperatives that are certified and those that are not certified. Additionally, coffee farmers with more than two hectares (approximately five acres) under coffee have the option of producing as coffee estates. This study had the aim of characterizing these three producer institutional arrangements in the coffee sector, in order to recommend policies for farmer empowerment that are specific to each arrangement. Characterization of the arrangements was done through an analysis of their organization, the activities, actors and processes engaged in and a cooperative profile. The study also detailed the demographic profile of respondents, including the age and gender of the respondents. An analysis of certification included the requirements, benefits and challenges of certification, as well as the awareness level of coffee certification among farmers. Finally, the study briefly looked at the collaboration among the producer institutional arrangements in coffee production and marketing. The study concludes with policy recommendations based on the dissimilarities found between the producer institutional arrangements.

Keywords: producer institutional arrangement, coffee certification

1. Introduction

Institutional arrangements are defined as “the policies, systems, and processes that organizations use to legislate, plan and manage their activities efficiently and to effectively coordinate with others in order to fulfill their mandate.” (United Nations Development Programme (UNDP), 2015). In this study, producer institutional arrangements refer to the institutional arrangements that govern the organization of coffee farmers. Characterization of the producer institutional arrangements in the coffee sector in Kenya was done through an analysis of the organization of the producer institutional arrangements, including the activities, actors and processes engaged with, and a cooperative profile. A demographic profile of respondents was done and included the gender and age of the respondents. Coffee certification which has the empowerment of farmers as a chief aim was examined, including the requirements, benefits and challenges of certification, as well as awareness of coffee certification among coffee farmers. Finally, collaboration among the producer institutional arrangements in coffee production and marketing was examined. The aim of characterizing the producer institutional arrangements was to enable policy recommendations specific to each arrangement.

2. Methods

The population of this study was coffee farmers in Kenya who had been engaged in production from January 2012 to December 2015. The study area was the Nyeri County of Kenya, which is one of 47 counties in Kenya.

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The sample size was calculated using a formula suggested for estimating sample sizes in social surveys by Fisher, Laing and Stoeckel (1983) which is $N = Z^2 pq / d^2$ where N is the desired sample size if the target population >10,000, z is the standard normal deviate at the required confidence level (which was 95 per cent), p is the proportion in the target population estimated to have the characteristic (assume 50 per cent if unknown), $q = 1 - p$, d is the level of significance or *Alpha*.

In this study: $z = 1.96$, $p = 0.5$, $q = 0.5$ and $d = 0.05$ $N = \frac{1.96^2 \times 0.5 \times 0.5}{0.05^2} = 384.16$

Using this formula resulted in a sample of 384 which was divided equally among the three producer institutional arrangements: Certified Coffee Cooperatives, Non-certified Coffee Cooperatives and Coffee Estates. 128 coffee farmers were therefore sampled from each institutional arrangement. The 23 coffee cooperatives in Nyeri County have 99 factories between them and there were 169 coffee estates in Nyeri County licensed for the 2015/16 year. The sampling frame was comprised of two members per factory in the Certified Coffee Cooperatives and four members per factory from the Non-certified Coffee Cooperatives. Enumerator guided questionnaires were administered to the respondents who were coffee farmers from both the cooperatives and estates, while interviews with key informants were conducted in each of the twenty-three coffee cooperatives in Nyeri County.

3. Organization of the Producer Institutional Arrangements

The coffee industry in Kenya is regulated by the Coffee Directorate, which is one of the directorates under the Agriculture, Fisheries and Food Authority. The Authority was created by the Agriculture, Fisheries and Food Authority Act (No. 13 of 2013). Besides regulating the coffee industry, it also has the mandate of registering and licensing actors in the coffee chain such as coffee growers, pulping stations, millers, marketing agents and buyers among others. The AFFA (2013) defines a coffee estate as “any large area of land or group of parcels of land under the same ownership on which coffee is grown and shall be not less than two hectares” and a cooperative society as being one “registered under the Co-operative Societies Act.” Coffee cooperative societies in Kenya are constituted, registered and regulated by the Co-operative Societies Act, Chapter 490 of the Constitution of Kenya (2010). Cooperative societies also formulate by-laws to govern various aspects of the administration of the cooperative.

3.1 Actors and Processes of the Coffee Commodity Chain

The coffee commodity chain in Kenya comprises various activities, processes and actors who are engaged in this process.

Table 1. Activities, Processes and Actors in the Coffee Commodity Chain

Activity	Processes and Actors	Remarks
Farming	This involves weeding, spraying chemicals such as herbicides, pesticides and fungicides, applying fertilizer, pruning and picking of ripe coffee (cherry). Cherry is then delivered to the factory for pulping. Most cooperative utilize family and casual labour for picking coffee while estates usually rely on casual labour and may have a permanent farm manager. Pruning and spraying in both cooperatives and estates often utilizes trained personnel.	In some cooperatives, quality assurance on the farm is done by designated cooperative representatives or employees such as a field committee or the factory manager. Trainings on coffee husbandry are often carried out by the government agricultural extension officers in cooperatives and to a lesser extent in estates. Agronomists are also utilized by both cooperatives and estates. In larger cooperatives, the agronomist may be an employee. Millers also avail agronomists to both cooperatives and estates.
Pulping	Pulping is done at the factory, also referred to as the pulping station. In this process, the cherry is sorted, washed and dried (wet processed). This processing results in coffee parchment, which is classified according to density as P1, P2, P3 and lights. Parchment resulting from cherry that is not washed (dry processed) is referred to as <i>buni</i> .	The number of factories in a cooperative depends on the number of members and their geographic dispersion. In Nyeri county, this ranges from one to nineteen factories. Factories are supervised by the factory manager. During periods of low production, some factories operate as collection centers to save on expenses. Most estates have one pulping station.
Milling	Parchment is processed through milling, which is a process that involves removing (hulling) the outer layer known as the husk. This process results in clean coffee, also referred to as green coffee. The difference in weight between the parchment and the clean coffee is referred to as milling loss and is expressed as a percentage. Grading of coffee also occurs in this process, where coffee is categorized according to the bean size. The larger sizes constitute premium grades, which command higher prices. The clean coffee is then delivered to the marketing agent.	Commercial millers are utilized by both cooperatives and estates. In Nyeri county, there are however three cooperatives with their own mill; Othaya, Barichu and Gikanda.

Marketing	Marketing agents sell coffee either through the auction at the Nairobi Coffee Exchange or through Direct Sales, whereby the sales transaction occurs between the buyer and the cooperative or estate through the marketing agent. Marketing of coffee is based on among other aspects, the grade and class of the coffee. The class is determined through a process known as coffee cupping or coffee tasting.	Marketing agents are widely used by cooperatives and estates, although they can acquire a grower-marketer license that enables them to act in the capacity of a marketing agent. While marketers and millers are mandated to be separate entities, the norm in practice is to use the marketing agent affiliated with the miller used. Coffee cupping is undertaken by professionals known as Q Graders.
Roasting	Most coffee in Kenya is exported as green coffee. However, a small proportion is sold domestically and this necessitates the roasting, grinding and packaging of coffee.	In Nyeri county, three cooperatives engage in roasting their coffee: Othaya, Barichu and Gikanda. Othaya has a roasting facility while Barichu and Gikanda outsource this processing.
Management	In cooperatives, management is by a committee that is elected by farmers. The Cooperative Act stipulates the procedure for doing this. The cooperative management committee usually comprises representatives elected at the factory level. The secretary-manager of the cooperative is an employee and is part of the administration. Factory managers oversee the technical aspects of the factory operations but in one-factory cooperatives, they often also function in the capacity of a secretary-manager. Estates are managed by the owner and in some instances where the owner is not available, by a farm manager.	None of the respondents in the study were utilizing a management agent to oversee all the activities from the farm to marketing. Management agents were however utilized for particular aspects in the coffee chain such as sourcing for chemicals.

3.2 Cooperative Profile

Until the late 1980s and early 1990s, there were four coffee farmer cooperative societies (FCS) in Nyeri County: Othaya FCS with 19 factories, Tetu FCS with 18 factories, Mathira FCS with 36 factories and Mukurweini FCS with 28 factories. Liberalization of the sector however led to three of these cooperatives – Tetu, Mathira and Mukurweini- undergoing a split, that led to the division of the cooperatives into mostly one-factory cooperatives. In the late 1990s, a directive was given to merge the factories of the newly formed cooperatives to enable economic viability. This happened to a large extent in Mukurweini and Mathira but not in Tetu which still features one-factory cooperatives.

Table 2. Coffee Cooperatives in Nyeri County

Former Farmers' Cooperative Society (FCS)	Current cooperatives	No. of Factories	Certified/Non-certified
Othaya	Othaya	19	Certified
Tetu	Mutheka	6	Certified
	Thiriku	1	Certified
	Gathaiti	1	Certified
	Aguthi	4	Non-certified
	Wachuri	1	Non-certified
	Gachatha	1	Non-certified
	Giakanja	1	Non-certified
	Githiru	1	Non-certified
	Njuriga	1	Non-certified
Mukurweini	Rugi	8	Certified
	Rumukia	8	Certified
	New Gikaru	5	Certified
	Ruthaka	4	Certified
Mathira	Mathira North	5	Non-certified
	Rutuma	7	Non-certified
	Kiama	5	Non-certified
	Tekangu	4	Certified
	Mugaga FCS	5	Certified
	Iria-ini FCS	3	Certified
	Gikanda FCS	3	Certified
	Barichu FCS	4	Certified
Gakuyu FCS	2	Certified	

Survey data, 2017

This study found that Othaya had retained its original 19 factories and was certified and all four cooperatives that were part of the former Mukurweini FCS were also certified. In Mathira, three cooperatives – Rutuma, Tekangu and Mathira North were classified as Mathira West while the others were classified as Mathira East. Out of the nine cooperatives in the former Mathira FCS, six were certified. In Tetu, three of the nine cooperatives were certified. It was the only area that featured one-factory cooperatives, with seven of the nine cooperatives being one-factory cooperatives. Aguthi, Njuriga and Githiru were classified as Nyeri Central although they were previously part of the Tetu FCS. In total, 14 cooperatives with 73 factories between them are certified while nine cooperatives with 26 factories between them are non-certified. In terms of duration since formation of the cooperative, the longest was 61 years for the certified cooperatives (Othaya FCS formed in 1956) and 21 years for the non-certified. The shortest duration was 12 years for both the certified and non-certified cooperatives.

Table 3. Coffee Cooperative Membership

Cooperatives	Registered members				Active members			
	Lowest	Highest	Mean	Std.Deviation	Lowest	Highest	Mean	Std.Deviation
Certified	1430	15000	5084	3823	1137	7322	4031	2105
Non-certified	400	6883	2933	2300	280	4460	1901	1386

Survey data, 2017

Seventeen of the 23 cooperatives provided data on the number of registered members while the rest provided data on the number of active members. Active membership was markedly less than the registered membership. The highest number of active members among the certified cooperatives was less than half of the registered membership, depicting a large number of dormant farmers. The cooperative with the least number of active members was a non-certified cooperative with 280 active members.

4. Demographic Profile of Respondents

This section presents the demographic profile of respondents in terms of gender and age.

Table 4. Gender of Respondents

Gender	Certified Coffee Cooperatives	Non-certified Coffee Cooperatives	Coffee Estates	Total
Male	67%	61%	82%	69%
Female	33%	39%	18%	31%

Survey data, 2017

In all the institutional arrangements, the majority of respondents were male. The lower percentages of male respondents in the cooperative sector as compared to estates can be partially attributed to the fact that some factory managers chose to be proactive in ensuring gender representation of respondents. Estates feature the lowest number of female representation, with only 18 percent of owners indentifying as female.

Table 5. Age of Respondents

Age (years)	Certified Coffee Cooperatives	Non-certified Coffee Cooperatives	Coffee Estates	Total
Less than 30	0	0	1	1
30-39	5	2	3	10
40-49	24	10	2	36
50-59	43	29	21	93
60-69	28	25	17	70
70-79	12	10	15	37
Above 80	3	0	5	8

Survey data, 2017

As depicted, there was only one farmer below 30 while the 30-39 age group averaged four per cent across all groups. However in the 40-49 age group, estates were comparatively lower with three per cent compared to 21 and 13 per cent respectively for the certified and non-certified cooperatives. The 50-59 age groups were all close to the average of 36 per cent while the 60-69 age groups ranged from 24-33 per cent.

The 70-79 age groups registered a higher percentage among coffee estates with 37 per cent of respondents being in this category compared to 10 and 13 per cent respectively in the certified and non-certified cooperatives. Overall, the majority of respondents were between the 50-69 age group, with more than 60 per cent being in this category. Key informants explained that the dominance of the older generation could be attributed to small farm sizes that did not lend themselves to sub-division, as well as a disinterest in coffee farming among the youth.

5. Certification in the Producer Institutional Arrangements

The AFFA defines coffee certification as, “a system that distinguishes a coffee product as being sustainably grown on the basis of economic viability, environmental conservation, social responsibility and ensures traceability.” (2015). The International Coffee Organization (ICO) stated that certification was seen as a useful strategy for improving the position of smallholder farmers in the sector (ICO, 2015). The main coffee certifications in Kenya are Fair Trade, UTZ, Rainforest Alliance, 4C (Common Code for the Coffee Community) and Café Practices.

The Fairtrade certification aims to improve the lives of farmers through improved terms of trade and better living and working conditions. this certification includes a minimum price and a premium that is used for investments in community development (Fairtrade, n.d). UTZ Certification requires socially and environmentally responsible coffee production. It also requires traceability from the producer to the consumer (UTZ Certified, n.d). Rainforest Alliance Certification requirements include conserving biodiversity and ensuring sustainable livelihoods by transforming land-use practices, business practices, water and soil protection and the fight against pests. 4C is a verification scheme which promotes sustainable social, economic and environmental practices and was originated to unify the various certification criteria. Its principles encompass all the actors in the coffee chain including the farmers, producer organizations, mills, exporters and traders. Starbucks C.A.F.E. (Coffee and Farmer Equity) Practices Certification evaluates the economic, social, and environmental aspects of coffee production. C.A.F.E. guidelines focus on four areas: high quality, economic accountability, social responsibility and environmental stewardship (Lentijo & Hostetler, 2017).

The most common certification identified in this study was that of Fairtrade, with at least 12 of the 23 cooperatives having received Fairtrade certification. This certification was current in some cooperatives but had expired in others. The earliest Fairtrade certification indicated was from 2006. At least seven cooperatives had obtained RainForest Alliance Certification, four had acquired 4C Certification with one stating that it was dormant at the time and at least two stated they had in the past been Utz certified. Key informants from non-certified cooperatives stated that they were considering certification or were in the process of acquiring it, while some had previously tried and failed to obtain certification. One cooperative had attempted to be FairTrade and Rainforest Alliance certified but had not met certain requirements such as those of quality, while another had failed in its attempt to be certified under Café Practices. The cost of certification was mentioned as a hindrance, due to requirements such as ensuring protective equipment for farmers and stipulated wage requirements for casual labour. One cooperative was working in collaboration with the marketer who would meet half of the one million shilling cost of qualifying for and obtaining certification.

In the case of certification of estates, it was stated that there were organizations that would offer assistance such as information provision and availing of an agronomist. The cost of certification was however unaffordable for most individual estates. Respondents also explained that it was difficult for estates to collaborate on attaining certification due to varying financial levels, as well as renegeing on agreement on joint milling by going to alternative millers who offered an advance on the coffee payment or other resources required urgently at the time. Only one estate indicated they had received certification.

5.1 Requirements of Coffee Certification

Regarding the requirements for certification, key informants indicated that they comprised of labour, quality and environmental standards. Labour standards included requirements pertaining to the interactions between the administration and employees as well as labourers, upholding of human rights and democracy, non-use of child labour, spouse benefitting from coffee payments if involved in coffee production and a proper flow of information with traceability of transactions and documentation. Quality standards encompassed the entire coffee production and processing chain with millers, marketers and buyers also requiring certification. Environmental standards included environmental management throughout the coffee processing chain starting from the farm.

These included practices such as proper hygiene, access to clean drinking water, toilets in home or farm area, proper disposal of waste matter, no leakage of water from sewage pits, proper storage of chemicals and non-use of prohibited chemicals. Audits were carried out to ensure compliance so as to maintain certification.

5.2 Benefits of Coffee Certification

In terms of benefits of certification, at least six key informants mentioned premiums as being one of the benefits of certification. It was acknowledged that although premiums did not go directly to the farmer, they lifted the standard of living in the community. This was through support of health, education or security projects. An example of the use of premiums was given by Gikanda FCS. In 2006 they received sh.434,638.75 which was utilized at Kangocho Community Health Dispensary, in 2007 they received sh.1,302,521.45 which was used to complete two nursery school classes at Gatundu primary and two classrooms as well as rehabilitation of the secondary school staffroom. In 2008 they received sh.824,735.90 which was again utilized at the Kangocho Community Health Dispensary and in 2009 they received sh.1,993,135.90 which was used for rehabilitation of classrooms at Thangeini primary school.

Other benefits of certification cited included access to a wider market, higher prices, faster marketing, being an added advantage in Direct Sales, training of farmers, fair payment of wages and salaries to employees, provision of appropriate clothing and equipment, enhanced capacity of employees in negotiation and a conducive factory environment including the observation of occupational health and safety standards. Measures taken to obtain certification were also said to improve the quantity and quality of coffee, as well as the environment. There are key informants who however stated that there were no benefits to certification as they had not received premiums or had received them inconsistently.

Among the certified respondents, there are some who did not understand the certification process or were partially informed and were therefore unsure of the benefits of certification. Others indicated that there were no benefits as there was no difference between certified and non-certified cooperatives in terms of price. It was explained that this sometimes occurred if the required coffee quantity of a particular quality was not attained, as this necessitated the mixing of high and low quality coffee which resulted in lower prices. Benefits of certification were also viewed as being dependent on the cooperative management in place.

5.3 Challenges of Certification

In terms of the challenges of certification, the most frequently mentioned challenge was the difficulty of maintaining certification as it was involving and expensive. Examples given by cooperatives of the cost of certification and renewal included an estimated sh.400,000 annually with additional costs of up to sh.1 million. Another example was a cooperative with two certifications that cost about sh.350,000 each, while another estimated sh.495,000 plus 100 Euros for an annual audit. This was compared to the amount received in premiums with one cooperative having received a total of sh.300,000 in three years. Enforcing requirements as well as non-conformity to requirements could also be costly. Key informants explained that farmers required consistent monitoring so as to maintain certification standards and avoid violation of certification.

Another challenge mentioned was that the certification organizations did not source for markets and the cooperatives therefore had to follow the conventional marketing channels which some deemed as not being transparent. A challenge which was specific to one cooperative involved the miss-appropriation of the premium by the cooperative management. This was settled with the help of the District Cooperative Officer and resulted in the management being dissolved and paying back the misappropriated money. The final challenge mentioned was the requirement of multiple actors in the coffee chain being certified. Discontinuation or suspension of certification could occur for various reasons. Some certifications expired and were not renewed due to lack of finances while others were discontinued due to a change by the cooperative of the miller or marketer used, which broke the requirement of certification across all the chain actors. One key informant also stated that their marketer had been suspended due to the non-separation of the premium and the regular coffee payments.

Table 7. Awareness of Coffee Certification

Certified Coffee Cooperatives	39% correctly indicate that the cooperative is certified	51% mistakenly indicate the cooperative is not certified	10% do not know if cooperative is certified or not.
Non-certified Coffee Cooperatives	89% correctly indicate that the cooperative is not certified	4% mistakenly indicate that the cooperative is certified	7% do not know if cooperative is certified or not
Coffee Estates	100% correctly indicate whether estate is certified or not (2% correctly indicate that estate is certified and 98% correctly indicate that the estate is not certified)	N/A	N/A

Survey data, 2017

Respondents from all three producer institutional arrangements were asked if their coffee was certified. Only 39 per cent of cooperative respondents from certified cooperatives indicated that their coffee was produced under a certification label. More than 60 per cent were therefore not aware that their coffee was certified or did not understand the concept of certification. Among those who knew that their coffee was certified, some did not know which certification they had. This was often the case in cooperatives that had obtained different certifications at varying times.

Among the non-certified cooperatives, four per cent mistakenly thought their coffee was certified due to reasons such as being encouraged to plant improved varieties of coffee. Those who were aware that their coffee was not certified gave various explanations for this. This included high costs, the cooperative failing to pay the certification fee, conflict in the cooperative and political interference. Others however stated that the cooperative was in the process of acquiring certification. There are those who perceived certification as an additional burden to the challenges already faced and stated that there were more pressing concerns to contend with besides certification.

Among the coffee estate respondents, there was a high level of awareness regarding certification although only one estate out of 56 respondents indicated they had received certification. Some were however considering certification and had initiated measures towards this, such as embarking on organic farming. These efforts were being made as part of an association of coffee estates and not individually. Others however did not perceive the need for certification, stating that the market was controlled by demand and supply and certification did not have a significant role in these dynamics.

There was the perception among some respondents of certification being exploitative and of the conventional marketing system not being transparent, whether it involved certified coffee or not. It was also argued that price was majorly dependent on quality and the benefits of certification were therefore difficult to ascertain in terms of marketing and price benefits.

6. Collaboration among the Producer Institutional Arrangements in Coffee Production and Marketing

There was a high degree of collaboration between cooperatives in coffee production and marketing. Key informants from ten certified cooperatives and seven non-certified cooperatives indicated that their cooperatives were engaged in such collaboration. Collaboration included information sharing, trainings and tendering for inputs. There was also collaboration with other organizations or individuals but this was to a lesser extent than the collaboration among cooperatives, with only seven and three key informants from the certified and non-certified cooperatives respectively indicating that their cooperatives collaborated with other organizations or individuals. These included various actors in the coffee chain such as Non-governmental Organizations (NGOs), coffee consultants, farmer organization groups and coffee processors. Collaboration included activities such as trainings, good agricultural practices, acquisition of inputs, coffee quality assurance and the certification process. It was explained that most collaborations were usually not on a long-term basis.

Among the coffee estate respondents, 46 per cent indicated that they had collaborated with other estates in the production and marketing of coffee. Only two per cent, representing one of fifty-four estates indicated that they had collaborated or partnered with other organizations or individuals in coffee production or marketing.

It was explained that while there was more bargaining power in collaborations, estates were hesitant of being part of joint ventures. This was due to fear that the process would lend itself to the same challenges as cooperatives, being skeptical of the benefits of collaboration and collaborative marketing requiring a lot of capacity building.

7. Conclusion and Recommendations

The requirements of certification, besides being beneficial to coffee farmers, serve the goals of national development. Quality improvement for example leads to an increase in coffee prices and by extension to an increase in government revenues through foreign exchange. Improved labour standards enhance national human resources, while the environmental standards have multiplier effects that are beneficial beyond the coffee sector. It is therefore recommended that the government facilitate the certification process for those cooperatives that are non-certified. Among the certified coffee cooperatives, it is recommended that measures be taken to increase the benefits of certification and reduce the cost of attaining and maintaining certification. This can be done through an audit of the entire coffee chain to ensure that the guaranteed minimum price reaches the farmer. Agricultural extension workers could also be involved in ensuring compliance to certification standards and the improvement of coffee quality so as to command higher prices. The government, through the coffee directorate, can assist in defraying the cost of certification to ensure that the benefits of certification are commensurate with the costs and effort exerted. Awareness also needs to be increased among farmers in certified cooperatives regarding certification and its benefits, so as to encourage compliance.

Regarding coffee estates, it is recommended that collaboration in the processes of pulping, milling, marketing, roasting and obtaining of certification be facilitated through the coffee directorate so as to save on costs. Arrangements could be implemented that enable estates to utilize cooperative facilities, such as the factory, for a fee. Organizations formed by coffee estates should benefit from a favourable tax regime so as to encourage collaborative efforts.

Other recommendations that pertain to certified and non-certified cooperatives as well as estates include the use of technology to encourage the involvement of the youth in the coffee sector. In particular, the use of mobile technology should be utilized to provide industry information pertaining to good agricultural practices, marketing and opportunities for value addition. In terms of the imbalance in gender involvement in the coffee sector, it is recommended that measures be taken to involve women in cooperative management. This would enable articulation of concerns pertaining to their involvement in the coffee chain. It is also recommended that the coffee directorate implement gender-empowerment measures through training that is specifically targeted to female farmers as well as the spouses of male members. This measure had been implemented in one non-certified cooperative. The coffee directorate would however be instrumental in reaching out to estates where gender imbalance is particularly pronounced. This can be done in partnership with coffee management companies.

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