Assessment of the Role of Women and Traditional Values and aspects of Coffee production and Brewing Ceremony

Submitted by

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Women In Coffee
ETHIOPIA

Acronym

AFCA	African Fine Coffees Association
BMCFCU	Bench Maji Forest Coffee Producers Farmers' Cooperative Union
CBD	Coffee Berry Dieses
CSA	Central Statistics Authority
CWD	Coffee Wilt Disease
ETB	Ethiopian Birr
FAO	Food and Agriculture Organization
FGD	Focus Group Discussion
FHHH	Female Headed Household
GDP	Gross Domestic Product
ICO	International Coffee Organization
IFPRI	International Food Policy Research Institute
KII	Key Informant Interview
KFCFCU	Kafa Forest Coffee Farmers' Cooperative Union
MHHH	Male Headed Household
NGO	Non-Governmental Organization
OCFCU	Oromia Coffee Farmers' Cooperative Union
SCA	Specialty Coffee Association
SCFCU	Sidama Coffee Farmers' Cooperative Union
TCFCU	Tepi Coffee Farmers' Cooperative Union
USAID	United States Agency for International Development
VCA	Value Chain Analysis
WiCE	Women in Coffee Ethiopia
YCFCU	Yirgacheffe Coffee Farmers' Cooperative Union

Table of Contents

Acronym 1

List of Figures i

List of Tables i

Executive summary ii

1. Background and Introduction 1

1.1 Introduction 1

1.2 Background about WiCE and the project 2

2. Overview about coffee sector and coffee value chain 2

3. Methodology 3

3.1 Overall research design. 3

3.2 Research approach: Value Chain Analysis (VCA) 3

3.3 Data collection: techniques and procedural matters 3

3.3.1 Desk review 3

3.3.2 Household survey 4

3.3.3 Key informant interview (KIIs) 4

3.3.4 Focus Group Discussion 4

3.4 Sampling Procedures 5

3.5 Sample size and sampling technique 5

3.6 Data analysis 7

4. Findings 8

4.1 Respondents' characteristics 8

4.2 The role of women in coffee value chain and benefit sharing 9

4.3 Coffee supply chain and women involvement 11

4.4 Coffee production and productivity limiting factors affecting women coffee producers. 13

4.5 Women access to coffee production inputs and support services 15

4.5.1 Women access to coffee seedling supply 15

4.5.2 Land ownership of women. 15

4.5.3 Women's sources of and access to technical information of coffee production 16

4.5.4 Women access to advisory services 17

4.5.5 Women access to training 17

4.5.6 Women access to credit 18

4.6 Women access to market and market information 18

4.7 Coffee processing and post-harvest loses. 19

4.8 Women participation in out-grower scheme 21

4.9 Coffee income utilization and women share of benefits in coffee value chain. 21

4.10 Women membership in coffee cooperatives 22

4.11 Women in coffee sector investment 23

4.12 Policy and legal environment to empower Ethiopian women in coffee value chain. 23

4.13 Traditional coffee brewing ceremony: characteristics, economics, and social values 23
4.14 Key challenges and entry barriers of women in coffee value chain 26
5. Conclusion 27
6. Recommendations 29
7. References 31
8. Annexes 33
8.1 Household survey questionnaire 33
8.2 Checklist for woreda level key informants 36
8.3 Checklist for Coffee processors, assemblers, roasters, exporters 38
8.4 Checklist for women engaged in the traditional Coffee brewing business. 39

List of Figures

Figure 1. Sampling procedure to identify respondents for the survey. 5
Figure 2. Coffee supply channels and coffee producers' women participation 12
Figure 3. Women access to improved coffee seedlings 15
Figure 4. Major sources of information on coffee production techniques 16
Figure 5. Proportion of women that received technical training on coffee production related topics 18
Figure 6. Coffee post-harvest loss for coffee producing women. 21
Figure 7. Sources of startup capital used by women coffee brewing business owners. 25

List of Tables

Table 1. Key research questions and approaches to address them. 4
Table 2. Sample size disaggregated by study sites. 7
Table 3. Socio-demographic characteristics of the respondents 8
Table 4. Education level of respondents 8
Table 5. Women labour contribution in coffee value chain activities at household level 9
Table 6. Coffee production and productivity limiting factors affecting women coffee producers. 14
Table 7. Proportion of coffee producer women experienced yield loss during last 5 years (2019-2023) 15
Table 8. Women satisfaction on advisory services 17
Table 9. Credit access of women coffee producers 18
Table 10. Women access to market information 19
Table 11. Proportion of women using washing and sun-dried processing method 20
Table 12. Income generated by coffee producing households and women control over coffee income. 22
Table 13.Proportion of women owned coffee processing and assembly businesses. 23
Table 15. Profitability of traditional coffee brewing business 26

Executive summary

Background

Women have been subject to a variety of influences for many centuries while remaining independent from development efforts and their participation in the economy, society, and politics. The challenge remained for long is, despite their immense role in development activities, how to address the challenge that deter their productive engagement in development activities and benefit from their participation However, it is imperative to make women equal participants and beneficiaries in all spheres of development, as well as the cornerstone for the nation's development and growth, by improving their position as decision-makers, enhance their productive capacity, improve their access to support services and resources. Coffee sector is the fundamental sector of the Ethiopian economy in terms of generating foreign currency, employment and livelihoods and women are the key players in carrying out tasks such as harvesting, washing, and sorting coffee, as well as roasting, brewing, marketing, and trading in the coffee value chain. Despite playing a significant role at all levels, women's ownership and control over coffee resources is very limited. The role that women play in coffee value chain is the basis for maintaining functioning of the industry. Taking measures to enhance the technical capacity of women, improving their specific constraints and challenges, and creating enabling environment is crucial step to increase the productivity of the coffee sector and enhance its competitiveness and overall efficiency. Taking appropriate measure to support women in coffee value chain should be evidence based. This study was, therefore initiated by Women in Coffee of Ethiopia (WiCE) to understand the role of women in coffee value chain, understand the contribution they are making at each stage of the coffee value chain, identify the challenges that undermine their productive capacity and benefit sharing from their engagement in the coffee value chain.

Research Approach

The study adopted a descriptive research design which comprises surveys, interviews, case studies, and observations. Descriptive research aims to gather an in-depth understanding of a phenomenon and answers when/what/where. A Value chain analysis (VCA) approach was used to understand the role of women and associated traditional values in coffee value chain and brewing ceremony both in the national and regional context. The VCA approach is most suitable approach to generate evidence that reveal the role of women in the entire coffee value chain. The study used desk review, questionnaire survey, key informant interview and FGD.

A questionnaire survey was conducted with the randomly selected coffee producer women drawn from coffee producing households in Djimma (Goma and Limu woredas), Kelem Wollega (Gawokebe woreda), Yirgacheffe sites (Yirgacheffe woreda), Illubabore (Yayu woreda), Kaffa (Gimbo woreda). Respondent women were selected from randomly selected coffee growing household that constitute 300 coffee producing women out of which 31% are household head women. Key Informant identified at different level (kebele, woreda, region and federal levels) were interviewed to generate detailed qualitative information on issues related to the role women in coffee value chain. Key informant interviews have been used to generate information from selected women that are engaged in coffee value chain, traders, processors, commercial coffee farm operators, exporters, and support services providers at woreda and kebele levels. An FGD was carried out with a group of women working in coffee production and as hired labor in coffee processing plants at each study location. The FGD were also conducted with women that are engaged in coffee brewing business in selected Addis Ababa, Adama, Hawassa and Chiro/Bedessa towns.

To generate both qualitative and quantitative information, a blend of data collection methods. For the household survey, a total of 300 coffee producing women were identified and interviewed from purposively selected sample kebeles of Djimma, Nekempti (Kelem Wollega), Illubabore, Kaffa, and Yirgacheffe sites out of which 36% were female headed households. The study targeted women that are engaged inf coffee production activities and the sample respondents were random drawn from the list of women farmers in the target kebeles. To generate the qualitative information a total of 4 FGDs

were conducted with women to understand the role of women in coffee value chain, identify challenges that affected their coffee production, status of women access to support services and issues pertaining to the functioning of the coffee supply chain in connection with the role of women. FGD participants carried out an in-depth discussion to identify value chain activities and proportion of role they play at each stage of the value chain. Sample size for key informant interview is 24 and the key informants were drawn from woreda, region and federal level who have good knowledge about the coffee sector in general. The woreda level key informants were specially very important as they were able to provide the study area specific information about the role of women in coffee value chain. The key informants were drawn from research institutions, the woreda agriculture office of each study site, coffee and tea authority and coffee-based business owners that are engaged in coffee collection, processing, roasting and export. A semi-structured questionnaire-based survey were also conducted with a total of 52 women that are engaged in traditional coffee brewing business. This component of the study was conducted with an objective of understanding the role of women in the traditional coffee brewing and the social and economic contribution they are making. This component of the study also attempted to investigate the economics of coffee brewing as a business, major challenges that undermine the business and current state of support services being provided to the women engaged in coffee brewing business.

Study Results

Labor contribution of women/young female in coffee production process and marketing

The share of labour contribution of women (housewives and young female) in coffee value chain activities is calculated based on the data obtained from the household survey. The coffee value chain activities performed by smallholder farm households are input procurement, sowing and nursery management, land preparation, farm management, harvesting, transporting (farm-home or market), sorting, drying, and marketing. The proportion of women that are engaged in the identified coffee value chain activities indicate that input procurement activity is performed by 85% of the interviewed women while sowing and nursery management activities are performed by 81% of the respondents. Land preparation is performed by 98% of the interviewed women, planting activity 80%, Coffee Farm Management (weeding, stumping, shade regulation management) and harvesting 100%; transporting From Farm to Homen 92%; Sorting Operation 72%; Drying Bed Construction 80%; Cleaning 64%; pulping 11%; retail marketing 80%; Marketing- Wholesale 41%; coffee collection activity from Village 4%; and coffee aggregation activity 0%. Interviewed women who are engaged in the above-mentioned coffee value chain activities were asked about the proportion of labor contribution at each stage of the coffee value chain and the result is presented on the figure below.

The average aggregate share of farm labour contribution of women across the entire coffee value chain (from inputs procurement up to marketing) has variation across study locations. The average women share of labour contribution in across the value chain is 65%.

Coffee productivity disparity between male and female headed households

Average coffee yield comparison has been made between household head women and households headed by men but women in the household's shoulder lion share of coffee production process. The average coffee productivity of women headed households is 10.78 quintal/ha while the male headed household is 7.77 qt/ha. This indicates that women headed households are more efficient in producing coffee which indicate they have greater contribution for the national level coffee productivity and production. Women headed households has shown a 30% more productive than male headed households. The underlying reason for such productivity difference emanate from the fact that even though women in the male headed household shoulder significant proportion of the coffee production activities, they are not targeted by the extension service as the service providers in the male headed household tend to target the male ignoring the women who carry out the major task.

Coffee processing and post-harvest losses.

The study reveals that only 41% of the coffee producer women carryout coffee processing using either washing, sun-dried or both methods. Of the total number of women that undertake coffee processing, 18% of them use washing method, 75% use sun-dried method and 7% use both methods. It has also implication on the knowledge and skill gap for women on processing coffee on coffee value addition and premium price they may receive from processed coffee. Most coffee producer women preference

to dry-processing method because dry processing allows producers to store the coffee in their home and spread out the income over the season. Focus group discussion participant women and key informants indicated that women have less preference to use wet processing method due to limited access to water to wash the coffee and due to the associated risk of storage loss and suspect flavour and odour might change if stored too long or exposed to moisture or heat. There is low differentiation of sundried prices paid by buyers (collectors) since there is no way for collectors to detect sundried quality when purchasing from women coffee producers.

Postharvest loss as defined by Feed the Future (2021) consists of quantitative loss in which the volume of the commodity that is lost entirely, and qualitative loss which entail the volume of the coffee that is deteriorated but can be salvaged for use as animal feed. The yield loss was estimated for coffee producers' coffee farmers across the study locations. The average estimated post-harvest loss that coffee producer women encountered is 9.4%.

Coffee supply chain and the role of women

There are 6 coffee supply channels identified in the study sites (figure 2). The level of involvement of women in these six supply chains vary depending on the nature of each supply chain. In each of these channels offers their own unique advantage and disadvantage to coffee producer women. The first channel is reported to be mainly used by women than men and of the total coffee producing women, 5% uses this channel to sale their coffee. The unique feature of this channel is the involvement of usurers as coffee collector (quasi-collectors) who collects coffee from women in return for the money he lends them much earlier the harvest time. The usurers collect the coffee at very low rate to compensate for the exorbitant rate of interest for the money he lends to the producers. Both the usurers and the coffee producing women concludes agreement which specify that the borrower repay the loan in kind (coffee) or with high interest rate. When repayment is in kind (coffee) the borrower women are selling their coffee to the usurers at a rate up to 50% lower than the prevailing market price. This channel puts coffee producing women at most disadvantage position as they are selling their coffee at low price. Coffee producing women are forced to enter this supply channel due to lack of credit facility in the nearby that they can use instead of going to the usurers. The second coffee supply channel entertain largest volume of coffee supplied by women coffee producers and is used by 42% of coffee producing women. This channel involves four market actors: village collectors, assemblers, processors, and exporters. Village collectors buy dried coffee at a price that vary with the quantity supplied. If small quantity is supplied women will receive from village collector less price per kg. As women tend to sell coffee in small quantity at different time, they receive lower price for not fulfilling collectors' quantity requirements. For example, if the women supply a 25 kg or above, they receive ETB 55 per kg if less quantity is supplied the price per kg will go down to ETB 50.

The third channel is the shortest of all supply chain next to channel VI and used by 23% of the coffee producer women. This supply route involves supplying the coffee directly to assemblers (wholesale buyers) and this has an important implication on the price received. Through this channel, women coffee producers receive the highest possible price for their dried coffee which is on average ETB60/kg if the coffee is sold in the month of December and the price could rise to ETB 100-120 per Kg if the coffee is sold in the month of July. However, it is only 14% are selling their coffee in June while the remaining 86% sales their coffee in months when prices are lower.

The fourth supply route that entertain only wet coffee is directly supplied to cooperatives. The cooperatives carryout the remaining value addition activities (processing). It is only 6% of the coffee producer women that supply red cherries through this route and supply red cherries to the cooperative at an average price of ETB 25/Kg. The most cited advantage of supplying red cherries to the cooperative is the supplier women are entitled to receive dividend payments at the end of every year depending on the volume of coffee supplied. This; however, require membership to the cooperative. The level of participation of coffee producing farmers in this supply chain is very low and the most important reason for less participation is because the proportion of women membership in the cooperatives is low and for a reason that the cooperatives payment modality is not convenient for women in which cooperatives make payments most often after the coffee collected from members is sold. Collectors and aggregators make payments immediately on spot unlike cooperatives that made them most preferred buyers.

The fifth channel is also an important supply route for coffee growers' women and 20% of the women use this channel that involve selling red cherries to the collectors. The collectors are agents as well as members of the cooperatives. The women sell the red cherry coffee at ETB 25/kg to the collectors and the collectors get ETB 1 per kg commission payment from the cooperatives. Connecting the women directly to the cooperative would help raise their benefits. The six channel involve the women sell their coffee directly to exporters which constitute insignificant proportion.

Women constitute lion share of hired labour in coffee processing plants.
Coffee processing plants that undertake coffee cleaning, sorting, pulping, washing, drying and hire more labourers' during seasons when these activities take place, and the majority of those laborer's are young female. Our findings from the study location revealed that women constitute 80-100% of labor that carryout these operations at processing plants. The women carryout the processing activities manually which is source of fatigue and burden on women. Introduction of modern processing technologies could easy such burdens of women. Visited farmers across the study location lacks investment on modern processing technologies. Whether introducing labour saving technology would be feasible option or not is challenged by the counter arguments that assume introduction of labour-saving coffee processing technologies could lead to reduced job opportunities for women. But it has to be noted that introducing processing technologies have positive effect on coffee quality and efficiency which will ultimately enhance the overall coffee value chain efficiency and productivity.

Coffee production and productivity limiting factors affecting women coffee producers.
Data obtained from coffee producer women on the prioritized coffee production limiting constraints is summarized on table below. Low and unpredictable coffee price is the major challenge for coffee producer women, followed by limited access to improve coffee varieties (2nd), limited knowledge on modern coffee agronomy (3rd), lack of credit access (4th), low access to processing facility (5th). All these highly prioritized coffee productions limiting factors are all together resulted from poor support service provisions. Considering the nature and extent of damage the natural factors could pose on coffee production, coffee producer women in the study sites were asked about the occurrence of natural disasters such as drought, disease, and insects and their impact on coffee yield. The result indicates that 14% of respondents in Djimma, 0% in Nekempti (Kelem Wollega), 75% in Yirgacheffe, 54% in Illubabore and 100% of Kaffa have experienced at least once during the last five years damage to their coffee yield due to these natural factors.

Women access to coffee production resources, inputs, and support services

- ***Women access to coffee seedlings.*** The main sources of coffee seedling to coffee producing household are own nursery (61%) followed by privately owned nurseries (22%). The role of government nurseries in the production and supply of coffee seedlings is very low (5.5%). The quality of the seedlings produced by farm households themselves of private farms is inferior as they are using inferior and low yielder seeds to produce seedlings. Poor government capacity is major gaps that limited its supply to 5% only.

- ***Land ownership of women.*** Access to agricultural land is essential coffee production input. The ways out of poverty depends on the number of resources owned to produce coffee. We have housewives and household head women in the study sample and their land holding size was determined. The data revealed that the land holding size of the household head women is 0.76ha while the landholding size of the male headed household is 0.87ha. This shows that in terms of land holding women headed households have 11% lower land size compared to the male headed households.

- ***Women access to technical information on coffee production.*** Technical information dissemination certainly becomes crucial to the coffee productivity of coffee producers' women farmers, learning about those production and other aspects that they were not aware of, which can possibly lead to improved production. Public agricultural extension offices are the lowest sources of technical information for coffee producer women. The role of cooperatives in the provision technical information to women coffee producers is zero.

- ***Women access to coffee related training.*** The proportion of women that received training on any aspect of coffee production and marketing is too low. The average proportion of women who received coffee related training is only 36% with a range of 62% in Illubabore and zero in Kelem wollega, 11% in Yirgachefe. And 85% in Kaffa sites. Due to lack of trainings coffee producer women tend to follow undesirable post-harvest practices, especially when producing sundried coffee.

- ***Advisory services to women.*** Interviewed women were also asked about the frequency of contact they had with extension worker to get advice on coffee production techniques. The response revealed that women are denied of getting advisory service from extension workers. The frequency of contact between coffee producers' women and coffee extension workers is on average only once in a period of 365 days. This level of contact is too low signifying the low level of extension support services given for coffee producers women farmers. Such low level of extension support service emanates from the male farmers biased approach being used by the public extension service while significant portion of coffee production and marketing falls on the shoulder of women. In addition to the low level of advisory support services provided for women farmers, the quality of the advisory service provided is quite low. Our data on women's level of satisfaction on the advisory service they received from the public extension service is below 'medium' satisfaction level.

- ***Women access to credit. Financial Inclusion***, which promotes access and the use of high-quality financial services, particularly among poor people, is crucial to achieving inclusive growth. Women disproportionately face financial access barriers that prevent them from participating in the economy and from improving their lives. Our analysis on women access to credit or loan is assessed at three levels. The data revealed that only 61% of coffee growing women need credit for their coffee farming, but only 44% have access to it. Having access to credit does not mean that women can take the credit because of several factors. Taking loan could be influenced by risk behavior and other supply side constraints. Of the total number of coffee producers' women with credit access, only 11% have taken the credit.

- ***Women access to market information.*** Accessibility to market information among rural farmers is important as it helps farmers be informed with reliable market information, increases their bargaining power, and increases the chance of improving productivity (Kwingwa, 2023)1. Access to market information also helps coffee grower women farmers to know when to harvest and where to sell as well as decrease risks in market transactions. Results of the current study indicate the proportion of coffee grower women who have access to market information constitute only 40%. The remaining 60% do not have access to information on the prevailing market prices, do not have information on buyers where they can get better prices. They arbitrarily sell their coffee to buyers in the market or to any collector that comes to their village.

Women participation in out-grower scheme

Out-grower schemes offers multiple advantages for coffee producing women as it drastically reduces the cost of production, price fluctuations and marketing costs. Contract farming opens new, previously unavailable markets to the farmers. Our grower schemes also ensure a greater production of higher quality farm produce, financial aid in cash and, also, technical training to the farmers. The study result indicates that only 53% of coffee producer women are engaged in out-grower scheme. The out-grower scheme is established with private processing plants/whole and assemblers. Supporting giving organizations such as the office of agriculture, Women in Coffee in Ethiopia (WiCE), coffee and tea authority should give prime focus to strengthening out-grower schemes to address key production, processing, market related challenges of coffee producing farmers in Ethiopia.

Coffee income utilization and women share of benefits in coffee value chain.

[1] Kwingwa J, Msinde J, Bakari SJ (2023) Determinants of Market Information Accessibility among Smallholder Spice Farmers in Tanzania. J Res Dev. 11:205

Women's equal access to and control over economic and financial resources is critical for the achievement of gender equality and empowerment of women and for equitable and sustainable economic growth and development (United Nations, 2009). the term control over income is conceptually defined to entail that women have some say in how the income is used—whether it is saved, invested, or spent on consumption and, if it is invested or spent on consumption goods, which items are purchased. It may be that the woman makes and implements the decisions alone or that she has a say in how the decisions are made within the household. It may be that she has money in a separate purse that she alone controls or that money is pooled, and she has a voice in how it is spent (Jemimah et al., 2019). Based on this definition, our study revealed that, women have control over only on 10% of the coffee value (income) generated by coffee producing households, despite 65% their labor contribution in the coffee production and marketing.

Women membership in coffee cooperatives

Membership of a household in coffee cooperative particularly when a man in the household is a member, does not always imply that women benefit. While household membership enables households to access resources, literature suggests that households do not allocate intra-household resources in a fair or optimal manner, but that allocation follows preferences of the person in power (Wouterse, 2016; Quisumbing et al., 2015). The findings of the current study found out that women membership to coffee cooperatives is only 25% (20% in Kelem wollega; 11% in Illubabore; 38% in Kaffa; 30% in Yirgacheffe), implying that coffee producing women, despite their immense role in the coffee production process, they are under-represented in the coffee cooperatives. Increasing women membership in cooperatives is an important steppingstone towards improving women benefit from coffee value chain and the ultimate empowerment.

Women in coffee sector investment

Women role in coffee value chain goes beyond household level coffee production to include coffee processing, roasting, and export. Accessing working place (lot), finance to buy and install state-of-the-art coffee roasting technologies are two major challenges that limit women entry in coffee processing, roasting and export industry. Ethiopia has around 400 coffee exporters out of which 13% are owned by women. The involvement of women in coffee processing and coffee assembly is very limited which is an indication of the existence of barriers that limit women entry in these businesses. Data collected from the study locations at zone level revealed that the proportion of women engaged in coffee processing (processing plants owned by women) is 8.48%. The proportion of women owned coffee assembly business constitute only 10% of the total number of individuals engaged in coffee assembly business.

Policy and legal environment to empower Ethiopian women in coffee value chain.

The national comprehensive coffee development strategy of Ethiopia recognizes the immense role of women in coffee sector development and the need for providing various support to empower women coffee value chain. The policy has strong provision that women should be encouraged to participate in production and distribution businesses, along with model farmers, who could be supported technically and certified as reliable seed/seedling suppliers, and cooperatives, for seedling multiplication and distribution. The policy suggests the establishment and operationalization of national platform in which women are well represented to give them opportunities to reflect their specific needs and challenges.

Proclamation no. 1051 /2017 provided for coffee marketing and quality control aimed at establishing modern coffee transaction system, to boost the benefits of coffee producers, transaction actors and the country. The proclamation is however silent about the support to be provided for actors involved in the coffee marketing in general and women in particular, despite the major role that women play in the coffee value chain. The proclamation has put a requirement for the provision extension technology support buy coffee buyers who buy coffee from small-scale farmers. But this is not taking place as coffee wholesale buyers are not providing extension and technology support for coffee producer stallholders.

Traditional coffee brewing ceremony: characteristics, economics, and social values

The traditional home-based coffee brewing ceremony emerged as business venture offering a source of self-employment and livelihood opportunities for women and families dependent on them. Almost all major towns, cities and even semi-urbanized villages are entertaining growing number of women with the traditional coffee brewing businesses. The ceremony is offering an important business opportunity for women from diverse socio-economic groups, educated, uneducated, elders, young female, housewives, household head women etc. Key informants regarded the traditional coffee brewing as having an important role that offers protection for coffee producers when international coffee market crisis takes place. Therefore, women who are engaged in coffee brewing business plays major role of promoting domestic consumption of coffee which provided protection for smallholder coffee producers at time of international market failure.

The survey result showed that women in coffee brewing business are using on average 8m2 lot to carry out their coffee brewing business with a maximum 32m2 and minimum 2m2 lot (space). Having adequate space is an essential requirement for attracting more customers and run and successful business. But due to limited startup capital and high lot rental cost, 59% of coffee brewing women are forced to carry out their business in a very small lot which is <4m2 lot. Of the total traditional coffee brewing business owners, 75% have 2 and less years of experience in the business. This is an indication of the fact that women may exit from the business as it is not an attractive due to low profitability of the business, for significant proportion of the women who operate at small scale (those working on <=4m2 lot). individual borrowers are the main sources of startup capital used by women coffee brewing business owners. Startup capital taken from Individual borrowers is costly and terms of repayment is less flexible with high interest rate ranging from 50% to 200% with full repayment schedule of 2-3 months period. Formal financial institutions provide startup capital to 15% of women coffee brewers while 18% are using their own savings to start the coffee brewing business. Our data revealed that 75% of coffee brewing women need to take loan to expand their business while the remaining 25% are not interested to take loan due to mainly fear of risks associated with timely repayment of the loan. This is directly related to the risk aversion behavior of the women who opt for not taking the loan due to fear of business failure. Of the total 75% of women who have expressed interest of taking loan, only 18% were able to take the loan due to lack of access or availability of loan providers for small business (34%), fear of risk of business of failure (16%), lack of collateral or mandatory saving (16%) and lengthy process to access the loan (6%) and the remaining 28% due to lack of information on the requirements and the process involved to apply and take the loan.

The traditional coffee brewing ceremony business comprises five essential cost components that constitute the total cost of coffee brewing: namely, house (lot) rent, labour, green coffee, sugar, fuel charcoal, frankincense, popcorn, green grass, and water. The average net profit generated by coffee brewing businesswomen is estimated to be ETB 2,425 with the maximum ETB 3,350 and ETB 2,245. The profit margin is estimated to be 18%. The coffee brewing business in addition to self-employment opportunity is a profitable business venture. But due to the low scale operation the level of profit gained from coffee brewing business is not attractive. This has resulted in low level of satisfaction among significant proportion of women that are engaged in the traditional coffee brewing business. Limited access to finance, low level of knowledge in roasting and brewing quality coffee are most limiting factor for expansion of the coffee brewing business to a bigger scale.

Major challenges of women across the value chain

Wide range of women interviewed in this study along the entire value chain have identified quite long list of challenges that undermine their contribution to the development of coffee industry in general. The changes are also barrier to women entry into coffee value chain. The most critical and prioritized challenges are the following:

- Limited women access to Extension service. Because of this, woman have low level of knowledge on improved knowledge, skill, and technologies on coffee production, processing, and marketing. While women make vital contributions to coffee farming, they lack knowledge of coffee farming activities. Ultimately, their limited access to information and training lowers the productivity of the coffee sector.
- Limited access to and utilization of financial services. World Bank gender strategy (2016-23) indicated increasing access to microfinance by 15% would reduce inequality by as much as

50%. Despite this fact the level of women access to financial services particularly access to loan/credit is very low. This is one of the most pressing challenges for all women along the coffee value chain, smallholder coffee producer women, processors, collectors, exporters.

- Limited women access to improved coffee cultivars or coffee seedlings. Main sources of seedlings are uncertified private seedling multipliers, private sector and own sources that are which turned out to be disease susceptible and poor yielding. Government nurseries are limited both in number as well as distribution capacity.
- Low access to market and market information
- There are also cultural and structural challenges that exclude women – lower control over resources, less ability to move freely, additional home responsibilities, and lower participation among married women.
- Poor linkages and collaboration between the public institutions and civil societies such as WiCE in harmonizing and harnessing efforts and resources towards addressing wide range of challenges of coffee producing women. Support giving actors tend to work in silos.
- Women access to market to earn appropriate income is very low. Women are forced to sell their coffee to collectors at lower prices in the village. Their low level of participation or membership of women at cooperatives is one reason for such scenario. Low access to market information has been also one contributing factor that forced women to sale low-paying buyers. Coffee producing women struggle with poor access to market information given they live in rural and remote areas and low level of support they are receiving from extension organizations. There are also cultural and structural challenges that exclude women – lower control over resources, less ability to move freely, additional home responsibilities, and lower participation among married women that limit their ability to market do intelligence, become member of cooperative and seek for assistance from support giving organizations that are located far from their village.
- Bureaucratic procedures of government offices, financial resources constraints (limited access to loan), limited knowledge and lack of technical support are all barriers that limited women entry in coffee large scale coffee production, processing, roasting and export.
- Shortage of work spacing for carrying out coffee roasting, processing, and exporting business is biggest challenge of all affecting women entry in coffee business. Carrying out these activities on rental land pose a high risk for the business sustainability due to highly volatile renal price and subsequent displacement. Any measure to be taken by the government to empower women working in coffee processing, roasting and export should target this challenge as top priority.

Conclusion

Women plays crucial role and shoulder lion share of coffee value chain activities which indicate that they play pivotal role for functioning of coffee value chain. Despite their contribution in the entire coffee value chain, coffee producers' women are access to support services such as extension, advisory services, financial services, market access, coffee processing services is very limited. Women are more efficient and productive that male as it has been witnessed the average coffee productivity of women headed household is 30% higher male headed households.

The average aggregate share of farm labor contribution of women across the entire coffee value chain (from inputs procurement up to marketing) has variation across study locations. The average women share of labor contribution in across the value chain is 65%. women make the highest proportion of labor contribution to coffee harvesting (83%), coffee retail marketing (71.75%), drying bed construction (67.2%), cleaning (62.6%) and pulping (62.5%). Our findings on the assessment of the role of coffee value chain is revealed that women contribution in coffee value chain is not limited to labor supply to undertake value chain activities but also entail wide range of wisdoms and knowledge that contribute for sustainable functioning and resilience of coffee value chain.

There are 6 coffee supply channels identified in the study sites. The level of involvement of women in these six supply chains vary depending on the nature of each supply chain. In each of these channels offers their own unique advantage and disadvantage to coffee producer women.

The extent of influence of coffee production constraints varies across study sites. For example, lack of access to processing facility, limited knowledge on modern coffee agronomy, lack of access to processing facility, limited knowledge on modern coffee agronomy and long distance are more severe constraints for women in Nekempti study sites. Whereas limited access to improve coffee varieties, lack of credit access, and limited knowledge on modern coffee agronomy are the most priority coffee production constraints of women in Yirgacheffe sites. Prioritization of constraints by study location is essential to devise location specific measures.

Low and unpredictable coffee price, limited access to improve coffee varieties, and limited knowledge on modern coffee agronomy are 1st, 2nd, and 3rd ranked top constraints affecting women coffee production across the study sites. Training, advisory services and information access are an important method to enhance technical knowledge of women to productively manage their coffee farming. However, the proportion of women that received training on any aspect of coffee production and marketing is too low.

The data revealed that only 61% of coffee growing women need credit for their coffee farming. only 44% have access to it. Having access to credit does not mean that women can take the credit because of several factors. Taking loan could be influenced by risk behavior and other supply side constraints. The third level analysis investigates the proportion of women who received loan and the data indicates that of the total number of coffee producers' women with credit access, only 11% have taken the credit. the proportion of coffee grower women who have access to market information constitute only 40%. The remaining 60% do not have access to information on the prevailing market prices, do not have information on buyers where they can get better prices. They arbitrarily sell their coffee to buyers in the market or any to any collector that comes to their village.

The study reveals that only 41% of the coffee producer women carryout coffee processing using either washing, sun-dried or both methods. The highest proportion of coffee producing women who undertake coffee processing at home is observed in Yirgacheffe (66%) and the lowest proportion is at Kelem wollega (14%). Of the total number of women that undertake coffee processing, 18% of them use washing method, 75% use sun-dried method and 7% use both methods. Most coffee producer women preference to dry-processing method because dry processing allows producers to store the coffee in their home and spread out the income over the season.

Women have control over only on 10% of the coffee value generated by coffee producing households, despite 65% of their labor contribution in the entire coffee production and marketing. Women are therefore, not receiving fair share of benefits from their engagement in coffee value chain.

Recommendations

- Improve collaborations between public institutions and civil societies to strengthen support service provision to coffee producing women.
- Strengthen cooperatives and reorient their service provision model to reach women farmers with tailored services to address specific needs of coffee producer women. The cooperatives need to provide women with market information, credit, saving, insurance, inputs, (seedlings) and advisory services and trainings.
- Strengthen and support out grower schemes to help women get access to better market, market information, improve their technical capacity and access to input and technologies.
- Access to seedlings of improved coffee is a challenge for coffee producer women. Create nursery business program would have double advantage. The first is by creating access to improved coffee seedlings the other is self-employment opportunities for female to engage in nursery businesses.
- The socio-cultural factors that limit women coffee producers and male extension workers interaction could be addressed through deploying women extension workers in the long run and using digital solutions (radio, mobile) to reaching women coffee producer with relevant extension advise in the short term. Civil association such as WiCE can play vital role in reaching women in coffee value chain with customized/tailored technical information using digital means.

- There is also a need for building radio listenership habits among women which entail advising women farmers to listen scheduled radio programs that meet their specific information needs.
- Use of female model farmers could serve as sort term strategy to address the shortage of female extension workers in the country. In this approach, model women could be selected, trained and mentored to provide advisory services to other coffee producing women in their village.
- Woreda level targeting for extension service should be guided by principle that require both participation of women along with their spouse in any relevant technical trainings, field visits, or advisory services.
- As a long-term solution, there is a need for change the prevailing harmful beliefs and attitudes and value that limited women movement and interaction with male extension services providers and their participation in development activities through series of community dialogues sessions.
- There is a need for strong advocacy works to influence the government to provide special treatments and support for women engaged in coffee processing, roasting, export businesses.

1. Background and Introduction

1.1 Introduction

Women have been subject to a variety of influences for many centuries while remaining independent from development efforts and their participation in the economy, society, and politics. The challenge remained for long is, despite their immense role in development activities, how to address the challenge that deter their productive engagement in development activities and benefit from their participation (Minh and Osei-Amponsah, 2021; FAO, 2019). However, it is imperative to make women equal participants and beneficiaries in all spheres of development, as well as the cornerstone for the nation's development and growth, by improving their position as decision-makers, enhance their productive capacity, improve their access to support services and resources (Gella and Tadelle, 2015).

In Ethiopia's rural communities, women play a leading and decisive role in livelihoods activities and family wellbeing. Women are managers of resources and suppliers of food, goods, plus caring-oriented duties like education, health, and protection. Despite such immense role they play in development, the recognition, the support, and the benefits they deserve to gain, or access has been denied leading to perpetual inequalities, unfair distribution of benefits, under development and inefficiencies in the society. Compared to men, female farm operators often have less access to land, inputs, finance, and knowledge. Within rural households, women often have limited say in decision making, are constrained in their access to public services, such as training and extension programmes, and lack control over income derived from agricultural production as well as investment decisions. This differential in access to resources and empowerment translates into a gender gap in agronomic and economic outcomes, such as yields, revenues from crop sales and household welfare (FAO, 2011).

Ethiopia stands in respect not only as the origin of Coffea arabica (Arabica coffee), an important producer and exporter, but it is also the highest consumer of the crop (variety) in Africa. By virtue of the importance of the crop in diets and culture of the populace, contribution to poverty reduction and importance in earning of foreign exchange (David and Christian, 2013). Coffee sector is the fundamental sector of the Ethiopian economy in terms of generating foreign currency, employment and livelihoods and women are the key players in carrying out tasks such as harvesting, washing, and sorting coffee, as well as roasting, brewing, marketing, and trading in the coffee value chain. Despite playing a significant role at all levels, women's ownership and control over coffee resources is very limited. The role that women play in coffee value chain is the basis for maintaining functioning of the industry. Taking measures to enhance the technical capacity of women, improving their specific constraints and challenges, and creating enabling environment is crucial step to increase the productivity of the coffee sector and enhance its competitiveness and overall efficiency. Taking appropriate measure to support women in coffee value chain should be evidence based. This study was, therefore initiated by Women in Coffee of Ethiopia (WiCE) to understand the role of women in coffee value chain, understand the contribution they are making at each stage of the coffee value chain, identify the challenges that undermine their productive capacity and benefit sharing from their engagement in the coffee value chain. For example, the World Food and Agriculture Organization (FAO 2011) reported that if women farmers had the same access to agricultural supplies, loans, and other services as men did, they might have raised their production by 20–30%.

1.2 Background about WiCE and the project

Women in Coffee Ethiopia Sectoral Association (WiCE) is a legally registered association, founded by strong women in the coffee value chain to create a platform for learning and growing in the coffee industry. WiCE has signed the MoU to become the Chapter to the International Women in Coffee Alliance (IWCA) in April 2017, in Seattle Washington at the Specialty Coffee of America (SCA) Annual Event. It is also a member of the Specialty Coffee Association (SCA) and the African Fine Coffees Association (AFCA) with its current 53 women members who are working in the coffee value chain from farm to the cup which include coffee exporters, coffee growers, coffee processors, coffee traders, coffee roasters (in local and export market), and coffee professionals such as trainers, consultants & coffee quality assurance professionals. WiCE's mission is to equip Women in Ethiopian Coffee Value Chain with the skills required to become competitive locally and globally with an overarching vision of becoming a driving force in the development and implementation of capacity building activities for Women in the Coffee Value Chain of Ethiopia. Moreover, WiCE aims to maintain its role as a voice for the millions of hard-working women in the coffee sector.

WiCE believe that an increased shared understanding of the involvement of women as beneficiaries in the coffee industry will help guide actions to ensure women's fair share of benefit from coffee value chain. Furthermore, this will serve as a very important guide to for-profit organizations and NGOs in understanding the status of the involvement of women in the coffee industry.

2. Overview about coffee sector and coffee value chain

Coffee plays an important role in the economy of many tropical countries by providing livelihoods for an estimated 25 million rural households. The performance of the sector could be enhanced by strengthening the women who represent a crucial resource along the entire coffee value chain through their role as farmers, labourers or entrepreneurs but face severe constraints in accessing production factors (ICO, 2018). In Ethiopia, coffee has both economic and social value (Birhanu et al., 2009). The subsector accounts for over 35% of agricultural foreign exchange earnings and about 4% of agricultural Gross Domestic Product (David and Christian, 2013). Coffee plays an important role in the economy of many tropical countries by providing livelihoods for an estimated 25 million rural households. The subsector accounts for 4% of agricultural Gross Domestic Product (David and Christian, 2013). With respect to creating job opportunity, coffee generates a considerable number of jobs on-farm, in the processing plants and in the transport sector. Consequently, Ethiopia stood fifth in the world and first in Sub-Saharan Africa in terms of the share of GDP that stems from coffee (World Bank, 2015).

The performance of the sector could be enhanced by strengthening the women who represent a crucial resource along the entire coffee value chain through their role as farmers, labourers or entrepreneurs but face severe constraints in accessing production factors (Fletschner and Kenney, 2014). With respect to creating job opportunity, coffee generates a considerable number of jobs on-farm, in the processing plants and in the transport sector. Consequently, Ethiopia stood fifth in the world and first in Sub-Saharan Africa in terms of the share of GDP that stems from coffee (World Bank, 2015). Coffee is cultivated by about 5 million farmers on an average of 0.12 hectares of land (CSA, 2017). USAID (2017) report indicated that 63 percent of Ethiopia's coffee is originated from Oromia and 36 percent from SNNPR with the average coffee holdings in Oromia are about three times larger at about 0.22 hectares

compared to 0.08 hectares in SNNPR. SNNPR has higher yields and is home to the highest grade of coffee Ethiopia produces, Yirgachefe.

The Ethiopian coffee market is influenced by both the global and domestic markets. Despite the government's efforts to encourage exports, including regulations that coffee of export quality must be exported, 54 percent of Ethiopia's coffee production was consumed domestically (Feed the Future, 2017).

Ethiopia's coffee export destination countries are European Union, Saudi Arabia, United States, Japan, and Soth Korea. For decades, Ethiopia was between the 9th and 5th biggest exporter in the world.

3. Methodology

3.1 Overall research design.

The study adopted a descriptive research design which comprises surveys, interviews, case studies, and observations. Descriptive research aims to gather an in-depth understanding of a phenomenon and answers when/what/where. The descriptive research design is appropriate as it helps to gather both qualitative and quantitative information that can describe the role of women in coffee value chain, identify and analyse entry barriers, and characterize, map and describe the level of share of benefits they gain from their involvement in coffee value chain, understand the historical background and trends in the role of women in the traditional N

3.2 Research approach: Value Chain Analysis (VCA)

A Value chain analysis (VCA) approach was used to understand the role of women and associated traditional values in coffee value chain and brewing ceremony both in the national and regional context. The VCA approach is most suitable approach to generate evidence that reveal the role of women in the entire coffee value chain. The VCA approach were used because the approach offers broader context to understand all dimensions of the roles and contribution that women are making in coffee value chain. In addition, as coffee is strategic export commodity, the study also investigated the women role considering the dynamics in the global coffee industry.

A value (supply) chain mapping was carried out to identify the stages of value chain and to determine the magnitude of contribution that women are making in coffee value chain. The value chain mapping exercise were participatory that involve various actors working in coffee value chain including women.

3.3 Data collection: techniques and procedural matters

3.3.1 Desk review

A thorough review of secondary resources including study reports, census data, national-level reports produced by governments and credible sources from international organizations & strategies and policies, legal instruments were conducted both during the data collection instrument development stage as well as during analysis and write up stages. The purpose of the review was to critically examine the available relevant background information pertinent to the objectives of the assignment.

3.3.2 Household survey

A questionnaire survey was conducted with the randomly selected coffee producer women drawn from coffee producing households in Djimma (Goma and Limu woredas), Kelem Wollega (Gawokebe woreda), Yirgacheffe sites (Yirgacheffe woreda), Illubabore (Yayu woreda), Kaffa (Gimbo woreda). Respondent women were selected from randomy selected coffee growing household that constitute 300 coffee producing women out of which 31% are household head women.

3.3.3 Key informant interview (KIIs)

Key Informant identified at different level (kebele, woreda, region and federal levels) were interviewed to generate detailed qualitative information on issues related to the role women in coffee value chain. Key informant interviews have been used to generate information from selected women that are engaged in coffee value chain, traders, processors, commercial coffee farm operators, exporters, and support services providers at woreda and kebele levels. The information generated through key informant interviews were an important task to answer most of the research questions of the assignment. Different tailored checklists were designed to the different category of respondents to guide the interview process.

3.3.4 Focus Group Discussion

A focused group discussion (FGD) was carried out with a group of women working in coffee production at each study locations. The FGD were also conducted with women that are engaged in coffee brewing business in selected Addis Ababa, Adama, Hawassa and Chiro/Bedessa towns.

Table 1. Key research questions and approaches to address them.

Key research questions	Data collection/approaches/ techniques
What is the role of women in coffee value chain?	Value chain analysis using semi structured questionnaire and key informant interview with selected women working at different stages of coffee value chain
What are the barriers to entry for women in the different stages of coffee value chain?	Checklist guided Key informant interview, review of policies/strategies and customary rules, legal instruments
What is the share of benefits that women are getting from their engagement in coffee value chain?	Value chain analysis using semi structured questionnaire and key informant interview with selected women working at different stages of coffee value chain
What role did women play through the history of coffee in Ethiopia and what traditional values do the community hold of women working in coffee?	Review of historical documents, narrative analysis, key informant interview with women, elders, value chain actors.
What is the history and role of women in the traditional coffee ceremony?	▪ Review of historical documents, ▪ narrative analysis, ▪ key informant interview with women, elders, value chain actors.
What gap do exist in the policy environment that disfavour women in coffee value chain? (Policy and legal environment, technological environment, socio-cultural environment, economic environment, value chain actors' behaviour and malpractices, traditional rules, value, and norms.	▪ Value chain analysis using semi structured questionnaire and key informant interview with selected women working at different stages of coffee value chain. ▪ Observations ▪ Markey system analysis

3.4 Sampling Procedures

The sampling procedure for household hold survey entail the selection of five purposively determined study sites (Djimma, Nekempti-Kelem wollega, Yirgacheffe-2 sites, Illubabore, and Kaffa) from which kebeles were selected in consultation with the woreda agriculture offices to identify major coffee producing kebeles. From each sample kebele, a total of 50 coffee producing women were selected randomly. The sample coffee producing women were made randomly from list of households obtained from each kebele.

Figure 1. Sampling procedure to identify respondents for the survey.

3.5 Sample size and sampling technique

To generate both qualitative and quantitative information, a blend of data collection methods. The sample size used for each of the different data collection method is provided on table 2.

For the household survey, a total of 300 coffee producing women were identified and interviewed from purposively selected sample kebeles of Djimma, Nekempti (Kelem Wollega), Illubabore, Kaffa, and Yirgacheffe sites out of which 36% were female headed households. The study targeted women that are engaged inf coffee production activities and the sample respondents were random drawn from the list of women farmers in the target kebeles.

To generate the qualitative information a total of 4 FGDs were conducted with women to understand the role of women in coffee value chain, identify challenges that affected their coffee production, status of women access to support services and issues pertaining to the functioning of the coffee supply chain in connection with the role women. FGD participants carried out an in-depth discussion to identify value chain activities and proportion of role they play at each stage of the value chain (table 2).

Sample size for key informant interview is 24 and the key informants were drawn from woreda, region and federal level who have good knowledge about the coffee sector in general (table 2). The woreda level key informants were specially very important as they were able to provide the study area specific information about the role of women in coffee value chain. The key informants were drawn from research institutions, woreda agriculture office of each study site, coffee and tea authority and coffee-based business owners that are engaged in coffee collection, processing, roasting and export.

A semi-structured questionnaire-based survey were also conducted with a total of 52 women that are engaged in traditional coffee brewing business (table 2). This component of the study was conducted with an objective of understanding the role of women in the traditional coffee brewing and the social and economic contribution they are making. This component of the

study also attempted to investigate the economics of coffee brewing as a business, major challenges that undermine the business and current state of support services being provided to the women engaged in coffee brewing business. The respondents of this specific component of the study were selected from Addis Ababa (20), Hawassa (12), Adama (10) and Chiro-Bedessa (10) and in-depth discussions were conducted with each of the interviewee.

Table 2. Sample size disaggregated by study sites.

Activities	Locations		Number of respondents
Household Survey	Keffa (*Keja Araba, Kayakela, Gedam, Mission and Alem Gono Kebeles*)		*50*
	Lekempti-Kelem Wollega		*50*
	Djimma-Goma and Limu		*50*
	Illubabore		*50*
	Yirgacheffe (2 sites)		*100*
Total			**300**
FGD with women engaged in coffee production and marketing	Kaffa		*1*
	Lekempti-Kelem Wollega		*1*
	Djimma-Goma and Limu		*1*
	Illubabore		
	Yirgacheffe (2 sites)		*1*
Total			**4**
Survey and interview with women engaged in coffee brewing business	Addis Ababa		*20*
	Adama		*10*
	Hawassa		*12*
	Hararghe-Chiro-Bedessa		*10*
Total			**52**
Key Informant Interview	Woreda/region agriculture/coffee development offices in Lekempti, Djimma, Illubabore, Yirgacheffe and Keffa		*15*
	Key value chain actors (coffee processors, roasters, exporters)		*5*
	Knowledgeable persons about the coffee industry		*4*
Total			**24**

3.6 Data analysis

Data analysis involved both qualitative and quantitative techniques. Data collected through structured questionnaire were analysed using statistical software SPSS. The specific analytical tolls were descriptive statistics which include percentages, ratio, proportion, range, mode, and mean with graphs and charts generated to make comparison for key parameters. The collected data from coffee were producer women and those that are engaged in coffee brewing business were entered into excel spreadsheet by experienced data entry clerk. The data quality testing which includes reviewing the data set to make it ready for analysis was conducted. The data collected using structured questionnaire were triangulated with the data obtained through FGD and key informant interview.

4. Findings

4.1 Respondents' characteristics

The socio-demographic characteristics of the respondents is summarized on table 3. Whether the respondent women are household head, land holding size, age and family size are the variables used to describe the respondents' characteristics. The proportion of the respondent women that are head of the household is 31% the highest being in Kaffa (44%) and the lowest 17% in Nekempti-Kelem Wollega.

Land holding size an important indicator for social status and wealth of the household and has wider implication on the livelihood of the household. The survey findings indicate that that the average land holding size is 0.83 ha. The average land holdings of respondents of from Djimma, Nekempti (Kelem Wollega), Yirgacheffe and Kaffa are all below the total average land holding size while the land holding size at Illubabore is quite high (1.70ha). Age of the respondents is an important factor that determine level of participation in coffee value chain activities and influential factor for the adoption of improved coffee production technologies and practices. The average education of the respondents for all the respondent is 42.18 years while the highest average age is calculated for Yirgacheffe (52.25 years) and Djimma (51.24 years).

Table 3. Socio-demographic characteristics of the respondents

Parameters		Study locations					Aggregate (N=300)
		Djimma (N=50)	Nekempti-KW (N=50)	Illubabore (N=50)	Yirgacheffe (N=100)	Kaffa (N=50)	
Household head females		40%	17%	27%	25%	44%	31%
Landholding size (Ha)	*Average*	0.77	0.79	1.70	0.67	0.76	0.83
	Max	1.5	1025	2.75	0.85	1.8	2.75
	Min	0.25	0.5	1	0.5	0.125	0.125
Age of respondent (Yrs)	*Average*	51.24	32.31	19.77	52.25	42.22	42.18
	Max	70	40	50	61	50	70
	Min	25	26	23	38	25	23
Family size	*Average*	4.78	4.64	5.27	5.58	5.28	4.98
	Max	7	8	8	8	7	8
	Min	3	2	4	4	4	2

Source: household survey (2023)

Education level of the respondents is presented on table 4. The data shows that the significant proportion of the coffee growing women cannot read and write (numeracy and literacy illiteracy) which has wide ray of implication on their social and economic life. Highest rate of illiteracy observed in Djimma followed by Yirgacheffe and Kafa which have both 75% and 68% of illiteracy, in respective order.

Table 4. Education level of respondents

Study locations	Respondents' education level (Percentage)				
	Illiterate	Grade 1-6 (Read& write)	Grade 7-8	Grade 9-12	Grade >12
Djimma	82%	18%	0.00%	0.00%	0.00%
Illubabore	0.00%	45%	0.00%	54%	0.00%
Nekempti-KW	19%	42%	27%	12%	0.00%
Yirgacheffe sites	75%	25%	0.00%	0.00%	0.00%
Kaffa	68%	32%	0.00%	0.00%	0.00%
Total Average	49%	32%	5%	13%	0%

Source: household survey (2023)

4.2 The role of women in coffee value chain and benefit sharing

Sustainability and gender equality in development interventions have gained increasing attention among funders, policy makers, and development practitioners in recent decades. Understanding the role that women play in every development process should therefore be at the core of measures towards bring gender equality. In recent decades, a value-chain development approach has been increasingly considered as one of the prominent paradigms in development thinking and practice that spur development of sustainable food systems, economic growth, and poverty reduction (FAO, 2016). Investigation of the role of women in coffee value chain is framed considering the perspectives of sustainable development and based on the premises that women should gain fair share of benefits that compensate for their labour contribution. The need for understanding the coffee value chain in light of women role is founded on the basic reason that the share of benefit that women gain from their involvement in coffee value chain should be proportional to the labour contribution at the different stage of the value chain. Analysis of women role therefore guides the identification and implementation actions that promote women benefits. There are arguments women provide the bulk of low-paid labour in Ethiopia's coffee sector, yet it is men who market the coffee, run the cooperatives and have control over the majority of the profits.

Farm labour contribution of women/young female in coffee production process and marketing

The share of labour contribution of women (housewives and young female) in coffee value chain activities is calculated based on the data obtained from the household survey. As indicated in table 5, the coffee value chain activities performed by smallholder farm households are input procurement, sowing and nursery management, land preparation, farm management, harvesting, transporting (farm-home or market), sorting, drying, and marketing. None of the interviewed women are engaged in village level coffee collection and cleaning activities.

The proportion of women that are engaged in the identified coffee value chain activities indicate that input procurement activity is performed by 85% of the interviewed women while sowing and nursery management activities are performed by 81% of the respondents. Land preparation is performed by 98% of the interviewed women, planting activity 80%, Coffee Farm Management (weeding, stumping, shade regulation management) and harvesting 100%; transporting From Farm to Homen 92%; Sorting Operation 72%; Drying Bed Construction 80%; Cleaning 64%; pulping 11%; retail marketing 80%; Marketing- Wholesale 41%; coffee collection activity from Village 4%; and coffee aggregation activity 0%. Interviewed women who are engaged in the above-mentioned coffee value chain activities were asked about the proportion of labour contribution at each stage of the coffee value chain and the result is presented on table 5.

The average aggregate share of farm labour contribution of women across the entire coffee value chain (from inputs procurement up to marketing) has variation across study locations. The average women share of labour contribution in across the value chain is 65% (Figure 2). Women labour contribution to coffee value chain activities is 63.2% in Djimma; 65% in Kelem Wollega 67% in Illubabore; 62.19% in Yirgachefe and 63% in Kaffa.

Table 5. Women labour contribution in coffee value chain activities at household level

Activities	Proportion of women engaged (%)	Labor contribution of women in Caffee value chain activities (Percentage)					
		Djimma (N=50)	Yirgachefe sites (N=100)	Illubabore (N=50)	Kelem Wollega (N=50)	Kaffa sites (N=50)	Total Average (N=300)
Input Procurement (seed, fertilizer, seedling)	85	61	60	73	69	62	65
Sowing And Nursery Management	81	58	58	63	61	73	61.87
Land Preparation for Coffee Planting	98	64	67	60	51	76	60.09
Planting Activity	80	59	61	62	61	57	60.06
Coffee Farm Management (weeding, stumping, shade regulation management)	100	59	56	47	50	59	51.82
Harvesting	100	81	80.58	84.3	87	85	83.27
Transporting From Farm to Home	99	61	59	62	67	61	62
Sorting Operation	72	50	61	63	80	55	60
Drying Bed Construction	80	90	73	67	58	62	67.25
Cleaning	64	54	64	59	71	63	70
Pulping	11	62	68	71	63	68	81
Marketing- Retail	80	77	61	93	63	65	71.75
Marketing- Wholesale	41	45	40	65	64	32	49.25
Marketing-Coffee aggregation activity	0	0	0	0	0	0	0
	Average	63.2%	62.19%	67.0%	65.0%	63.0%	65%

Source: household survey (2023)

As indicated in table 5, the proportion women labour contribution varies from activity to activity. For example, women make the highest proportion of labour contribution to coffee harvesting (83%), coffee retail marketing (71.75%), drying bed construction (67.2%), cleaning (62.6%) and pulping (62.5%).

Our findings on the assessment of the role of coffee value chain is revealed that women contribution in coffee value chain is not limited to labour supply to undertake value chain activities but also entail wide range of wisdoms and knowledge that contribute for sustainable functioning and resilience of coffee value chain. All interviewed key informants have a common view that women have a long-accumulated wisdoms and knowledge that transcended generations making positive contribution for managing coffee genetic resources.

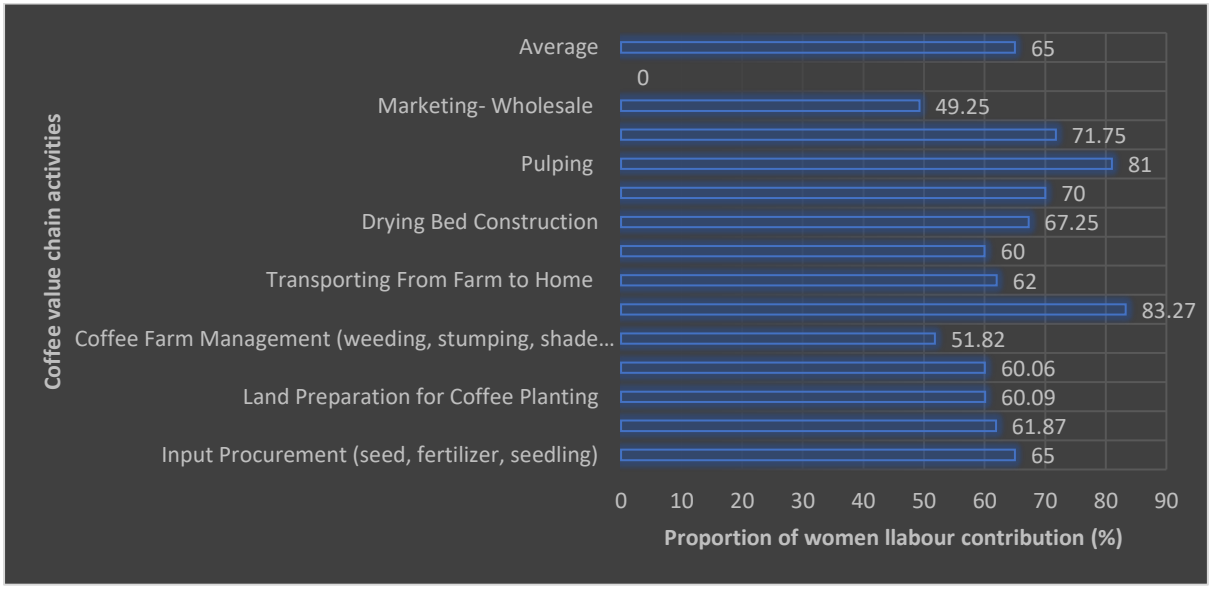


Figure 2. Labour contribution of women in coffee value chain (2023)

Women role in genetic resources conservation
The role in coffee genetic resources conservation emanate from their responsibility of managing natural forest under which they grow their coffee. Women are highly attached to the coffee land as they spend more time in coffee farm than men for collecting firewood and carryout other farm related activities. Coffee produced in the home garden are often comprise a pool of coffee biodiversity and therefore women role in sustainably managing the garden is on the hands of women.

Women have a role to household decision over improved coffee varieties choice.
Women farmers have in fact been largely responsible for the improvement and adaptation of many plant varieties. Through the multivariate process of seed selection, they choose certain desirable plant characteristics and decide on the quantity and variety to be saved as well as the method of preservation. The moment that the crops begin to flower, women begin observing the plants, and later harvest seeds based on their size, grain formation and resistance to pests and insects.

4.3 Coffee supply chain and women involvement

The coffee supply chain map presented on figure 3 depicts the channels through which the coffee producer women use to sell their produce. There are 6 coffee supply channels identified in the study sites. Each of these channels has its unique advantage and disadvantage for coffee producer women.

Channel I [CH1]: This channel is reported to be mainly used by women than men and of the total coffee producing women 5% uses this channel to sale their coffee. The unique feature of this channel is the involvement of usurers as coffee collector (quasi-collectors) who collects coffee from women in return for the money he lends them much earlier the harvest time. The usurers collect the coffee at very low rate to compensate for the exorbitant rate of interest for the money he lends to the producers. Both the usurers and the coffee producing women concludes agreement which specify that the borrower repay the loan in kind (coffee) or with high interest rate. When repayment is in kind (coffee) the borrower women are selling their coffee to the usurers at a rate up to 50% lower than the prevailing market price. This channel puts coffee producing women at most disadvantage position as they are selling their coffee at low price. Coffee producing women are forced to enter this supply channel due to lack of credit facility in the nearby that they can use instead of going to the usurers.

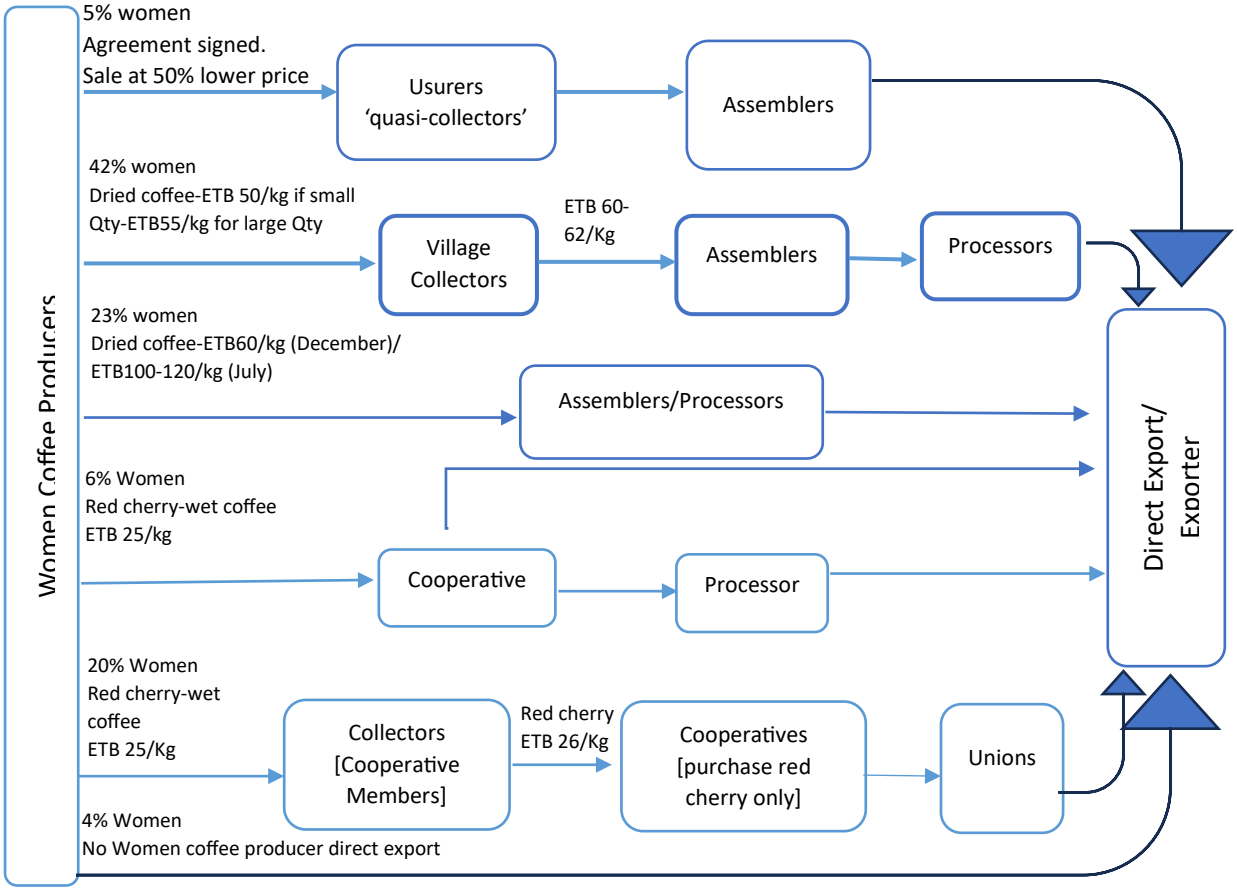


Figure 3. Coffee supply channels and coffee producers' women participation

Channel II [CH2]: The second coffee supply channel entertain largest volume of coffee supplied by women coffee producers and is used by 42% of coffee producing women. This channel involves four market actors: *village collectors, assemblers, processors, and exporters*. Village collectors buy dried coffee at a price that vary with the quantity supplied. If small quantity is supplied women will receive from village collector less price per kg. As women tend to sell coffee in small quantity at different time, they receive lower price for not fulfilling collectors' quantity requirements. For example, if the women supply a 25 kg or above, they receive ETB 55 per kg if less quantity is supplied the price per kg will go down to ETB 50.

Channel III: The third channel is the shortest of all supply chain next to channel VI and used by 23% of the coffee producer women. This supply route involves supply of the coffee directly to assemblers (wholesale buyers) and this has an important implication on the price received. Through this channel, women coffee producers receive the highest possible price for their dried coffee which is on average ETB60/kg if the coffee is sold in the month of December and the price could rise to ETB 100-120 per Kg if the coffee is sold in the month of July. However, it is only 14% are selling their coffee in June while the remaining 86% sales their coffee in months when prices are lower. Women who use this supply route need to travel away from their village as buyers are in the nearby towns and market centres.

Channel IV: This is a supply route that entertain only wet coffee (red cherries) that is directly supplied to cooperatives. The cooperatives carryout the remaining value addition activities

(processing). It is only 6% of the coffee producer women that supply red cherries through this route and supply red cherries to the cooperative at an average price of ETB 25/Kg. The most cited advantage of supplying red cherries to the cooperative is the supplier women are entitled to receive dividend payments at the end of every year depending on the volume of coffee supplied. This; however, require membership to the cooperative. The level of participation of coffee producing farmers in this supply chain is very low and the most important reason for less participation is because the proportion of women membership in the cooperatives is low and for a reason that the cooperatives payment modality is not convenient for women in which cooperatives make payments most often after the coffee collected from members is sold. Collectors and aggregators make payments immediately on spot unlike cooperatives that made them most preferred buyers.

Channel V: The fifth channel is also an important supply route for coffee growers' women and 20% of the women use this channel that involve selling red cherries to the collectors. The collectors are agents as well as members of the cooperatives. The women sell the red cherry coffee at ETB 25/kg to the collectors and the collectors get ETB 1 per kg commission payment from the cooperatives. Connecting the women directly to the cooperative would help raise their benefits.

Channel VI: The shortest of all the chain and 4% of the coffee producer women sell the ir coffee to the exporters directly. These women, unlike other women farmers that sell their coffee via the other channels carryout processing (washing, sorting, cleaning) the coffee and supply to the exporters.

4.4 Coffee production and productivity limiting factors affecting women coffee producers.

Data obtained from coffee producer women on the various coffee production limiting constraints is summarized on table 6. Interviewed women were asked to rate [1=Very high--2=high--3=Medium—4=Low---5=Very Low] the extent to which the identified constraints provided on table 4 affected coffee production. Constrained with average score less than 3 is critical factor adversely affecting coffee production. Accordingly, low/unpredictable coffee price, limited access to improve coffee varieties, lack of credit access, shortage of transport service, high cost of inputs, lack of access to market information, lack of access to processing facility, limited knowledge on modern coffee agronomy, lack of access to processing facility, limited knowledge on modern coffee agronomy and long distance to market are critical constraints that are limiting women coffee producers.

The extent of influence of these constraints varies across study sites. For example, lack of access to processing facility, limited knowledge on modern coffee agronomy, lack of access to processing facility, limited knowledge on modern coffee agronomy and long distance are more severe constraints for women in Nekempti study sites. Whereas limited access to improve coffee varieties, lack of credit access, and limited knowledge on modern coffee agronomy are the most priority coffee production constraints of women in Yirgacheffe sites. Prioritization of constraints by study location is essential to devise location specific measures.

Low and unpredictable coffee price, limited access to improve coffee varieties, and limited knowledge on modern coffee agronomy are 1st, 2nd, and 3rd ranked top constraints affecting women coffee production across the study sites.

Table 6. Coffee production and productivity limiting factors affecting women coffee producers.

Constraints	1=Very high--2=high--3=Medium—4=Low---5=Very Low						Rank
	Average	Djimma	Nekempti-	Yirgacheffe	Illubabore	Kaffa	
Disease (Coffee berry/wilt)	3.52	3.7	3.87	3	2.63	3.32	13th
Insects	3.35	3.68	3.91	3.33	3.72	2.42	12th
Weed	3.82	3.38	4	3.16	3.63	4.3	14th
Drought	3.92	3.56	4.02	3.41	4.27	4.24	15th
Low/unpredictable coffee price	2.26	2.08	1	1.75	2.72	2.7	1st
Limited access to improve coffee varieties	2.45	3.72	1.89	1.25	1.54	2.2	2nd
Lack of credit access	2.61	3.84	2	1.25	1.90	2.48	4th
Shortage of transport service	2.91	4.12	1.83	2.66	2.54	2.9	7th
High cost of inputs	2.99	3.8	2.37	3.25	2.18	2.9	8th
Lack of access to market information	2.86	3.64	2.29	2.66	3.09	2.62	6th
Lack of access to processing facility	2.67	3.56	1	2.91	2.54	3.46	5th
Labor shortage	3.25	3.3	3.10	3.6	2.81	3.46	11th
Poor soil fertility	3.67	3.76	3.62	4.08	3.36	3.6	
Poor storage facility	3.16	3.58	2.64	3	3	3.32	10th
Limited knowledge on modern coffee agronomy	2.47	3.18	2.56	2	2.27	1.86	3rd
Long distance to market	2.99	3.88	2.37	2.66	3.07	2.62	9th

Source: Survey (2023)

The constraints identified on the table above have effect on coffee productivity and production. The most important factors are factors that are natural occurring as they pose biggest challenge to control them. For example, drought is the most crucial challenge for coffee producers around the world. Some studies predicted roughly half of the land most conducive to growing coffee will decrease over the next 30 years due to climate change (Gruter et al., 2022; Bunn et al., 2015). Disease and insects are also most deterrent challenges of coffee producers which have disastrous effect on coffee production and productivity. Coffee is often affected by various insect pests as well as fungal and bacterial diseases (Hindorf & Omondi, 2011). Considering the nature and extent of damage the natural factors could pose on coffee production, coffee producer women in the study sites were asked about the occurrence of natural disasters such as drought, disease, and insects and their impact on coffee yield. The result indicates that 14% of respondents in Djimma, 0% in Nekempti, 75% in Yirgacheffe, 54% in Illubabore and 100% of Kaffa have experienced damages on their coffee yield due to these natural factors at least once during the last 5 years. The extent of yield loss that coffee producer women experienced is presented in the table 7. Significant proportion of coffee producer women experienced 1 up to 50% coffee yield loss due to natural factors.

Table 7. Proportion of coffee producer women experienced yield loss during last 5 years (2019-2023)

Study sites	Proportion of women experiencing yield loss during last 5 years	Extent of yield loss due to natural factors			
		Total loss	70-99%	50-69%	Up to 50%
Djimma,	14%	0%	0%	0%	100%
Nekempti	0%	0%	0%	0%	0%
Yirgachefe	75%	0%	0%	44%	56%
Illubabore	54%	0%	0%	33%	66%
Kaffa	78%	0%	0%	18%	82%

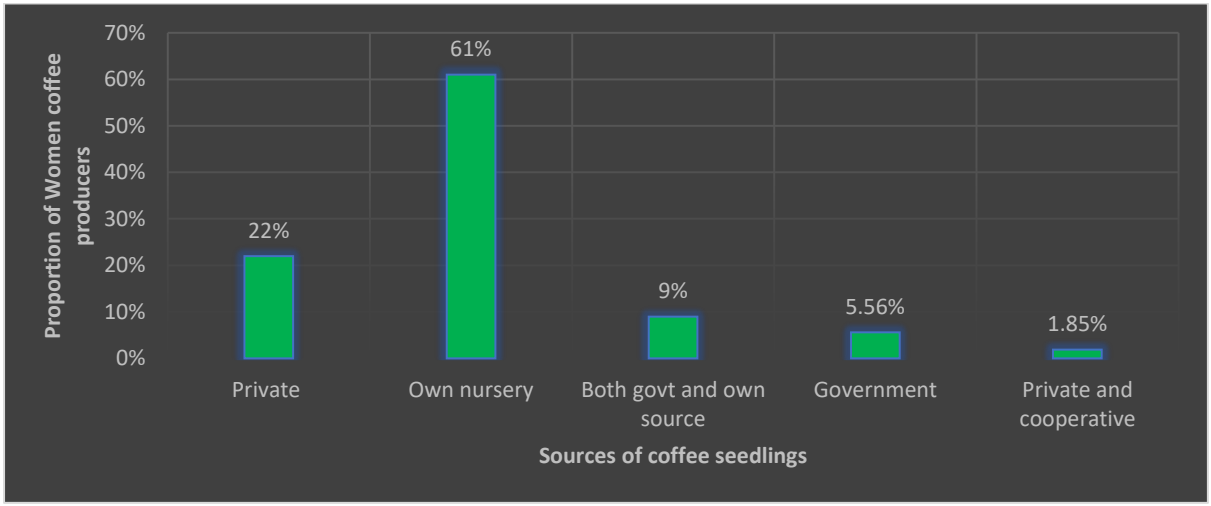
Source: Survey (2023)

4.5 Women access to coffee production inputs and support services

4.5.1 Women access to coffee seedling supply

Coffee seedling preparation and nursery management in general is primarily the main role of women as up to 58% of the nursery management at household level is shouldered by women. As indicated in figure 4, the main sources of coffee seedling to coffee producing household are own nursery (61%) followed by privately owned nurseries (22%). The role of government nurseries in the production and supply of coffee seedlings is very low (5.5%) which is an important area of support services that must be given to the coffee producing farm households to significantly raise coffee productivity. One of the main limitations of the nurseries owned by farm households is they are not properly managed by scientific knowledge which may lead to the production of poor performing seedlings that ultimately undermine coffee productivity. In farmer owned nurseries the probability of using improved and high yielder coffee varieties is very low. The supply of coffee seeds and seedlings from the government or woreda bureau of agriculture is not always sufficient and is most often late and as key informants indicated this is due to budget shortage.

Strengthening government nurseries is one possible area of intervention to produce and supply quality seedlings. The private and cooperative owned nurseries are also important institutions whose capacity should be strengthened to multiply and supply quality seedlings.



Source: household survey (2023)

Figure 4. Women access to improved coffee seedlings

4.5.2 Land ownership of women.

Land is the most important agricultural production factor and provides the basis for growing crops or holding livestock. Land, when farmed sustainably, can be passed on through generations, providing a livelihood for rural communities. Importantly, in areas with functioning

property markets, land can also be used as collateral to obtain finance from commercial lenders. As such land ownership is vital to secure working capital loans and particularly finance for long-term investments in agricultural enterprises (ICO, 2018).

Access to agricultural land is essential coffee production input. The ways out of poverty depends on the number of resources owned to produce coffee. We have housewives and household head women in the study sample and their land holding size was determined. The data revealed that the land holding size of the household head women is 0.76ha while the landholding size of the male headed household is 0.87ha. This shows that in terms of land holding women headed households have 11% lower land size compared to the male headed households.

4.5.3 Women's sources of and access to technical information of coffee production

Technical information dissemination certainly becomes crucial to the coffee productivity of coffee producers' women farmers, learning about those production and other aspects that they were not aware of, which can possibly lead to improved production. It is on this premise that the assumptions that access to coffee related technical information by women at the right time would enable them to carry out the production activities in a better way. This would lead to better and efficient management of other resources which would lead to increased agricultural productivity.

Sources of technical information

Our data revealed women farmers use multiple sources of coffee related technical information experts (public extension institution), broadcasting media (primarily radio), fellow farmers or relatives, commercial coffee growers, NGOs, traders, and cooperatives (Figure 5). Fellow farmers or relatives are primary sources of coffee related technical information that is rated by 37% of the total respondents followed by broadcasting media (radio) which is second most important sources of coffee related technical information. Public coffee extension institutions, coffee cooperatives and NGO are less accessible sources of coffee information for female farmers. Despite these institutions are mainstreamed coffee extensions service providers the role they are playing in the provision of coffee technical information for women coffee producers is very low.

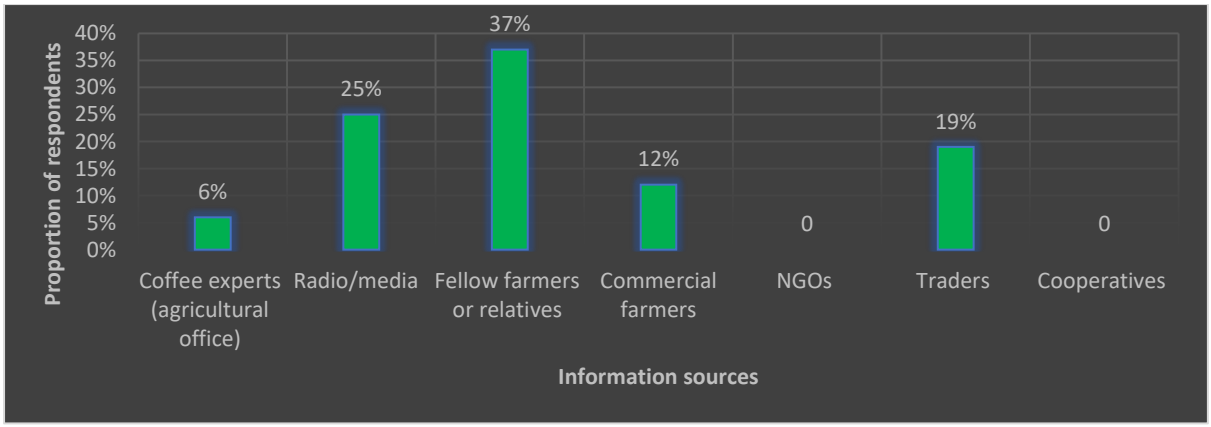


Figure 5. Major sources of information on coffee production techniques

4.5.4 Women access to advisory services

Interviewed women were also asked about the frequency of contact they had with extension worker to get advice on coffee production techniques. The response revealed that women are denied of getting advisory service from extension workers. The frequency of contact between coffee producers' women and coffee extension workers is on average only once in a period of 365 days. This level of contact is too low signifying the low level of extension support services given for coffee producers women farmers. Such low level of extension support service emanates from the male farmers biased approach being used by the public extension service while significant portion of coffee production and marketing falls on the shoulder of women. In addition to the low level of advisory support services provided for women farmers, the quality of the advisory service provided is quite low. Our data on women's level of satisfaction on the advisory service they received from the public extension service is below 'medium' satisfaction level (Table 8).

Table 8. Women satisfaction on advisory services

Study Locations	Number of contacts with coffee experts/DAs for advice on coffee (2023)			
	Average number of contacts (2022/23)	Max	Min	Level of satisfaction (Average score) 1=Very Low…5=Very High
Djimma	9	23	0	2.4
Kaffa	2.57	5	0	3
Lekempti	2.15	4	0	3
Yirgachefe	1.4			2.2
Illubabore	0.25	1	0	1.6
Aggregate	1	23	0	2.53

4.5.5 Women access to training

Training is an important method to enhance technical knowledge of women to productively manage their coffee farming. Regardless of the depth and width of the topics covered on a in any aspects of coffee production, processing, and marketing as well as post-harvest management, training is suitable method for women as if offers firsthand information. Despite, its importance in building technical skill of coffee producers' women, our study revealed the that women have limited access to participation in trainings. Interviewed women were asked about if they had received any training on any topics for the last five years. As indicated in table 6, the proportion of women that received training during the last five years on any aspect of coffee production, processing and/or marketing topics is too low. The average proportion of women who received coffee related training is only 36% with a range of 62% in Illubabore and zero in Kelem wollega, 11% in Yirgachefe. And 85% in Kaffa sites.

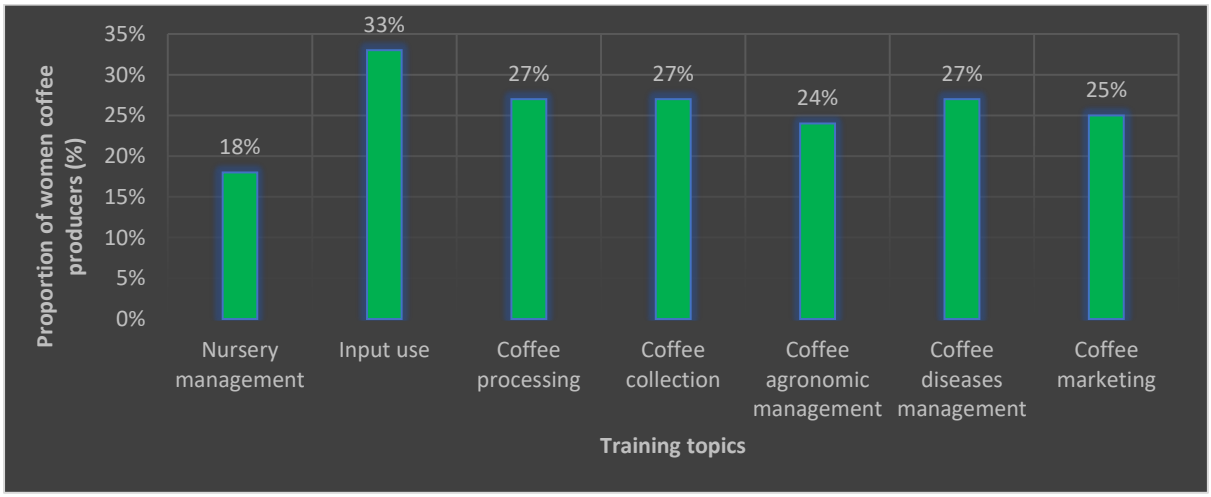


Figure 6. Proportion of women that received technical training on coffee production related topics

4.5.6 Women access to credit

Financial Inclusion, which promotes access and the use of high-quality financial services, particularly among poor people, is crucial to achieving inclusive growth. Women disproportionately face financial access barriers that prevent them from participating in the economy and from improving their lives.

Our analysis on women access to credit or loan is assessed at three levels. The first level involves assessing their need for credit which aim at understanding if coffee producer women have a need for credit to carry out their coffee farming. The data revealed that only 61% of coffee growing women need credit for their coffee farming. The second level assessment involve determining the proportion of women who have access to credit from any source. Among those who need credit, only 44% have access to it. Having access to credit does not mean that women can take the credit because of several factors. Taking loan could be influenced by risk behavior and other supply side constraints. The third level analysis investigates the proportion of women who received loan and the data indicates that of the total number of coffee producers' women with credit access, only 11% have taken the credit.

Table 9. Credit access of women coffee producers

Study location	Need for credit	Access to credit	Credit taken
Djimma	12%	31%	0.00%
Kaffa	35%	23%	14.00%
Kelem wollega	100%	76%	14.29%
Yirgachefe	56%	28%	11.11%
Illubabore	63%	33%	25.00%
Aggregate	61%	42%	11.11%

Source: Household survey (2023)

4.6 Women access to market and market information

4.6.1 Women access to market information

Accessibility to market information among rural farmers is important as it helps farmers be informed with reliable market information, increases their bargaining power, and increases the chance of improving productivity (Kwingwa, 2023). Access to market information also helps coffee grower women farmers to know when to harvest and where to sell as well as decrease risks in market transactions.

Results of the current study indicate the proportion of coffee grower women who have access to market information constitute only 40% (Table 10). The remaining 60% do not have access to information on the prevailing market prices, do not have information on buyers where they can get better prices. They arbitrarily sell their coffee to buyers in the market or any to any collector that comes to their village.

To those women coffee producer farmers who have access to market information, the available sources are extension organization (coffee experts), radio, farmers, NGOs, traders, or cooperatives. Cooperatives are major sources of information for largest proportion of women (28%), followed by radio and fellow farmers (23% each). In Djimma area, the role cooperative as source of coffee market information is inexistent (0%) while in Yirgachefe area cooperatives are source of market information for 77% of women coffee producers.

Table 10. Women access to market information

Study locations	Proportion of women with access to market information					
	Coffee experts	Radio/media	Farmers	NGOs	Traders	Cooperatives
Djimma	12.50%	56.25%	25.00%	0%	6.25%	0.00%
Kaffa	43%	14%	0%	0%	14%	29%
Kelem Wollega	10%	0%	40%	0%	50%	0
Yirgachefe	0%	11%	11%	0%	0%	78%
Illubabore	0%	10%	15%	0%	37%	38%
Aggregate	13%	23%	16.67%	0%	19.00%	28.00%

Source: Household survey (2023)

4.7 Coffee processing and post-harvest loses.

After harvest, coffee producer women quickly transport the portion of coffee cherry they do not intend to process at home to private or cooperative processing stations. Processing refers primarily to the method of removing the skin, pulp, and parchment from the outer layers of the coffee cherry, to reveal the green coffee bean (the seed of the plant) underneath. In the dry or “natural” process, coffee cherries are dried whole. In the study areas, this is usually done using raised drying beds, though some coffees are also dried on the ground, especially coffees for the local market. The great advantage of natural processing is that it does not require any water, nor any elaborate machinery or facilities. As a result, one finds more naturally processed coffees in drier areas, as well as poorer or more remote areas. In the washed or “fully washed” style of processing, the outer skin of the coffee cherry is removed immediately after harvesting, usually the same day the cherries were picked. This is done using machines which “pick” or scrape away just the very outer layer of the cherry, leaving behind the parchment coffee covered in sticky mucilage. The “washed” designation refers to what happens to the coffee next. The mucilage-coated beans are then fermented with water in large tanks, usually cement. The disadvantage of the washed process is that it requires large quantities of water and more infrastructure.

The study reveals that only 41% of the coffee producer women carryout coffee processing using either washing, sun-dried or both methods. The highest proportion of coffee producing women who undertake coffee processing at home is observed in Yirgacheffe (66%) and the lowest proportion is at Kelem wollega (14%). Of the total number of women that undertake coffee processing, 18% of them use washing method, 75% use sun-dried method and 7% use both methods. In Illubabore, though the proportion of women that process their coffee is relatively low, significant proportion of them use the washing processing method (66%). Washed coffee is viewed as having a more uniform and reliable flavor than sun-dried coffee and commands a higher price (IFPRI, 2015).

The proportion of coffee harvest that is processed using washing method indicate the implication on the contribution of women to improving quality of coffee bean supplied to the market. It has also implication on the knowledge and skill gap for women on processing coffee on coffee value addition and premium price they may receive from processed coffee. Most coffee producer women preference to dry-processing method because dry processing allows producers to store the coffee in their home and spread out the income over the season. Focus group discussion participant women and key informants indicated that women have less preference to use wet processing method due to limited access to water to wash the coffee and due to the associated risk of storage loss and suspect flavor and odor might change if stored too long or exposed to moisture or heat. Group ownership of processing facilities should be encouraged. Provision of credit facilities for purchase of washing stations would address

current shortages of wet processing facilities in the nearby that force women to walk long distances and thus discourage wet processing.

Table 11. Proportion of women using washing and sun-dried processing method

Study sites	Proportion of women coffee producers that process coffee	Proportion of women coffee producers using:		
		Washing	Sun-dried	Both washing& sun-dried
Djimma	26%	0.00%	100%	0.00%
Kelem Wollega	14%	14%	86%	0.00%
Yirgachefe	66%	0.00%	100%	0.00%
Illubabore	27%	66%	33%	0.00%
Kaffa	74%	10%	57%	33%
Aggregate	**41%**	**18%**	**75%**	**7%**

Source: Household survey (2023)

Postharvest loss as defined by Feed the Future (2021) consists of quantitative loss in which the volume of the commodity that is lost entirely, and qualitative loss which entail the volume of the coffee that is deteriorated but can be salvaged for use as animal feed. The yield loss was estimated for coffee producers' coffee farmers across the study locations. The average estimated post-harvest loss that coffee producer women encountered is 9.4% the highest being at Yirgacheffe site 17% and the lowest rate at Nekempti site (Kelem Wollega) 3.4%. Previous studies on coffee post-harvest loss assessment are available. For example, Feed the Future estimated 5% coffee post-harvest loss,

Female headed households produce 30% more coffee yield than male headed households.

Women, even though have limited access to support services, are more efficient than male headed households. The average coffee productivity of women headed households is 10.78 quintal/ha while the male headed household is 7.77 qt/ha which a 30% yield than male headed households. The underlying reason for such productivity difference emanate from the fact that even though women in the male headed household shoulder significant proportion of the coffee production activities, they are not targeted by the extension service due to male biased extension approach.

Women are responsible for carryout out 70% of coffee processing activity performed at household level and 80-100% of labour forces employed at commercial processing plants are women.

Coffee quality is heavily influenced by post-harvest handling and processing, so farmers' practices can have a large impact (Richard, 2007). Washing method is best method for enhanced coffee quality and provide better price that coffee processed using dry method. Despite this, of the total number of women that undertake coffee processing, only 18% of them washing method while 75% use sun-dried method and 7% use both methods. Women have less preference to use wet processing method due to limited access to water to wash the coffee and due to the associated risk of storage loss and suspect flavour and odour might change if stored too long or exposed to moisture or heat. There is low differentiation of sundried prices paid by buyers (collectors) since there is no way for collectors to detect sundried quality when purchasing from women coffee producers. The average estimated post-harvest loss that coffee producer women encountered is 9.4% and such significant post-harvest loss is attributed to the limited access to technical advice and extension service given to women (mainly in male headed household) on coffee processing and post-harvest handling.

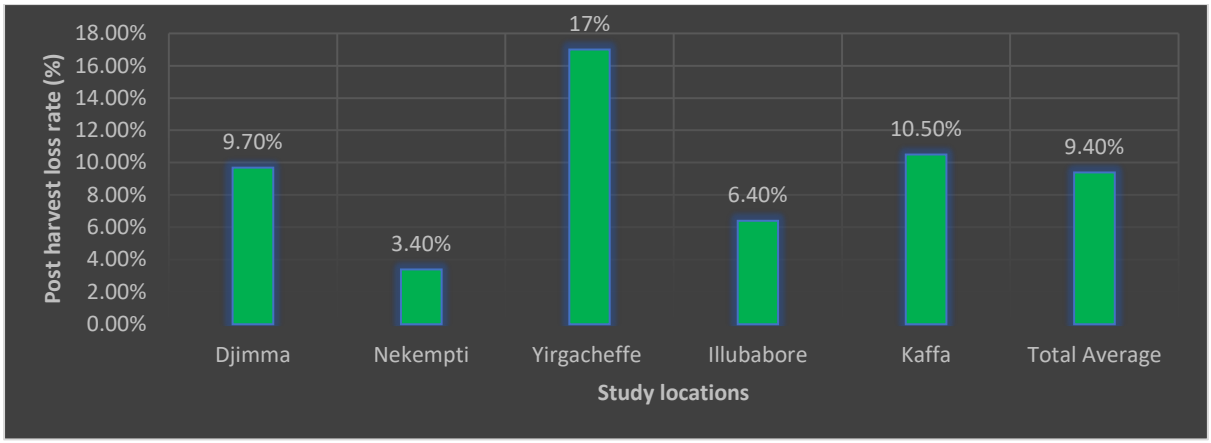


Figure 7. Coffee post-harvest loss for coffee producing women.

4.8 Women participation in out-grower scheme

Out-grower schemes offers multiple advantages for coffee producing women as it drastically reduces the cost of production, price fluctuations and marketing costs. Contract farming opens new, previously unavailable markets to the farmers. Our grower schemes also ensure a greater production of higher quality farm produce, financial aid in cash and, also, technical training to the farmers. The study result indicates that only 53% of coffee producer women are engaged in out-grower scheme. The out-grower scheme is established with private processing plants/whole and assemblers. Supporting giving organizations such as the office of agriculture, Women in Coffee in Ethiopia (WiCE), coffee and tea authority should give prime focus to strengthening out-grower schemes to address key production, processing, market related challenges of coffee producing farmers in Ethiopia.

4.9 Coffee income utilization and women share of benefits in coffee value chain.

Women have control over only on 10% of the coffee value (income) generated by coffee producing households, despite 55% their labour contribution in the coffee production and marketing.'

Women's equal access to and control over economic and financial resources is critical for the achievement of gender equality and empowerment of women and for equitable and sustainable economic growth and development (United Nations, 2009). Data obtained from the household survey on issues of who in the household decide on the utilization of coffee income revealed an interesting story. In this context, the term *control over income* is conceptually defined to entail that women have some say in how the income is used—whether it is saved, invested, or spent on consumption and, if it is invested or spent on consumption goods, which items are purchased. It may be that the woman makes and implements the decisions alone or that she has a say in how the decisions are made within the household. It may be that she has money in a separate purse that she alone controls or that money is pooled, and she has a voice in how it is spent (Jemimah et al., 2019).

An in-depth discussion was caried out to determine the amount of income generated from coffee sales that women have control over. The interviewed women were asked to first calculate the income the household generate from coffee sale and then determine what amount she has control over as the definition of control provided above.

The average value generated by coffee producing households is estimated to be ETB199,122 (table 7). As indicated on table below, women have control over only on 10% of the coffee value generated by coffee producing households, despite 65% of their labour contribution in the coffee production and marketing. Women are therefore, not receiving fair share of benefits from their engagement in coffee value chain.

Of this amount women are contributing 65% of the total labor required to produce and supply coffee. This implies that women are contributing for the 65% of the coffee value generated but the proportion of income that women producing women have control over the income generated from the coffee production is only 10%. The implication behind the low level of women control over household income is associated with perpetual inequality and low level of women empowerment. In line with this, Jemimah et al. (2019) identified three dimensions in which women's control over income is important. It benefits the women themselves; controlling one's income is a source of empowerment and agency. Second, it benefits their children and families. Finally, when women control the income, it increases their stake in the agricultural sector and increases investment. This implies that women are contributing for the 55% of the coffee value generated but the proportion of income that women producing women have control over the income generated from the coffee production is only 10%.

Table 12. Income generated by coffee producing households and women control over coffee income.

Study Sites	Average HH Income			Income that Women have control			Proportion (Income that Women have control)
	Max	Min	Ave	Max	Min	Ave	
Djimma	470,000	34,500	177,040	90,000	5,000	29,460	22%
Nekempti_KW	243,000	72,000	162,944	10,000	0.00	1,897	1.93%
Yirgacheffe	39,000	15,300	27,992	30,000	2,000	7,208	24%
Illubabore	300,000	54,000	127,636	1,318	0.00	5,000	1.21%
Kaffa	188,024	20,400	500,000	2,880	0.00	11,000	5%
Average	248,005	39,240	199,122	26,840	1,400	10,913	10.83%

Source: Household survey (2023)

4.10 Women membership in coffee cooperatives

Six coffee farmers' cooperative unions were established following the issue of Proclamation No. 147/1998. These are the Oromiya Coffee Farmers' Cooperative Union (OCFCU), Sidama Coffee Farmers' Cooperative Union (SCFCU), Yirgacheffe Coffee Farmers' Cooperative Union (YCFCU), Kafa Forest Coffee Farmers' Cooperative Union (KFCFCU), Tepi Coffee Farmers' Cooperative Union (TCFCU) and Bench Maji Forest Coffee Producers Farmers' Cooperative Union (BMCFCU).

Membership of a household in coffee cooperative particularly when a man in the household is a member, does not always imply that women benefit. While household membership enables households to access resources, literature suggests that households do not allocate intra-household resources in a fair or optimal manner, but that allocation follows preferences of the person in power (Wouterse, 2016; Quisumbing et al., 2015). The findings of the current study found out that women membership to coffee cooperatives is only 25% (20% in Kelem wollega; 11% in Illubabore; 38% in Kaffa; 30% in Yirgacheffe), implying that coffee producing women, despite their immense role in the coffee production process, they are under-represented in the coffee cooperatives. Increasing women membership in cooperatives is an important steppingstone towards improving women benefit from coffee value chain and the ultimate empowerment.

4.11 Women in coffee sector investment

Women role in coffee value chain goes beyond household level coffee production to include coffee processing, roasting, and export. Accessing working place (lot), finance to buy and install state-of-the-art coffee roasting technologies are two major challenges that limit women entry in coffee processing, roasting and export industry. Ethiopia has around 400 coffee exporters out of which 13% are owned by women.

The involvement of women in coffee processing and coffee assembly is very limited which is an indication of the existence of barriers that limit women entry in these businesses. Data collected from the study locations at zone level revealed that the proportion of women engaged in coffee processing (processing plants owned by women) is 8.48%. The proportion of women owned coffee assembly business constitute only 10% of the total number of individuals engaged in coffee assembly business (table 13).

Table 13. Proportion of women owned coffee processing and assembly businesses.

Study locations	Coffee processing plant			Coffee assembly business firms		
	Proportion owned by women	Total # of processing plant	# of processing plant owned by women	Owned by women	Total # of coffee assembly businesses	Proportion owned by women
Djimma	2	90	2.22%	3	55	5.45%
Kelem Wollega	5	16	31.25%	19	57	33.33%
Yirgachefe	12	62	19.35%	2	52	3.85%
Illubabore	3	25	12.00%	6	87	6.90%
Kaffa	2	90	2.22%	3	55	5.45%
Total Average	24	283	8.48%	33	306	10.78%

Source: Zone and woreda offices-Key Informant Interview (2023)

4.12 Policy and legal environment to empower Ethiopian women in coffee value chain.

The national comprehensive coffee development strategy of Ethiopia recognizes the immense role of women in coffee sector development and the need for providing various support to empower women coffee value chain. The policy has strong provision that women should be encouraged to participate in production and distribution businesses, along with model farmers, who could be supported technically and certified as reliable seed/seedling suppliers, and cooperatives, for seedling multiplication and distribution. The policy suggests the establishment and operationalization of national platform in which women are well represented to give them opportunities to reflect their specific needs and challenges.

Proclamation no. 1051 /2017 provided for coffee marketing and quality control aimed at establishing modern coffee transaction system, to boost the benefits of coffee producers, transaction actors and the country. The proclamation is however silent about the support to be provided for actors involved in the coffee marketing in general and women in particular, despite the major role that women play in the coffee value chain. The proclamation has put a requirement for the provision extension technology support buy coffee buyers who buy coffee from small-scale farmers. But this is not taking place in reality as coffee wholesale buyers are not providing extension and technology support for coffee producer stallholders.

4.13 Traditional coffee brewing ceremony: characteristics, economics, and social values

The traditional coffee ceremony that entirely involves the natural processing method is an integral part of Ethiopian society. The emergence of the traditional coffee brewing outside of the home-based ceremony into commercial venture cannot be traced to the exact year.

The traditional home-based coffee brewing ceremony emerged as business venture offering a source of self-employment and livelihood opportunities for women and families dependent on them. Almost all major towns, cities and even semi-urbanized villages are entertaining growing number of women with the traditional coffee brewing businesses. The ceremony is offering an important business opportunity for women from diverse socio-economic groups, educated, uneducated, elders, young female, housewives, household head women etc.

Key informants regarded the traditional coffee brewing as having an important role that offers protection for coffee producers when international coffee market crisis takes place. Therefore, women who are engaged in coffee brewing business plays major role of promoting domestic consumption of coffee which provided protection for smallholder coffee producers at time of international market failure.

Coffee brewing women characteristics

Coffee brewing women are using on average 8m^2 lot to carry out their coffee brewing business with a maximum 32m^2 and minimum 2m^2 lot (space). Having adequate space is essential requirement for attracting more customers and run and successful business. But due to limited startup capital and high lot rental cost, 59% of coffee brewing women are forced to carry out their business in a very small lot which is <4m^2 lot.

Coffee brewing women are undertaking their business in an environment where they are most often forced to change place of their business due to several reasons. They have regular customer of 16 individuals who use their service on daily basis, with minimum of 1 individual customer and maximum of 35 per day.

The average number of years of experience in the traditional coffee brewing business is 2 years with the minimum experience of 6 months and maximum of 5 years' experience. Of the total traditional coffee brewing business owners, 75% have 2 and less years of experience in the business. This is an indication of the fact that women may exit from the business as it is not an attractive due to low profitability of the business, for significant proportion of the women who operate at small scale (those working on <=4m^2 lot).

Source of initial capital to start coffee brewing business.

Women engaged in coffee brewing business use an average initial capital of ETB 4,609 with a range of ETB 1,000 and 15,000. The size of the initial capital does not necessary relate to the size of the business rather could be reflection of the cost of lot rental which constitute significant portion of the initial capital.

Women engaged in coffee brewing business were asked about the sources of startup capital which could fall into categories such as formal financial institutions, family support, own saving, individual borrowers, or donation. As indicated on figure 8 below individual borrowers are the main sources of startup capital used by women coffee brewing business owners. Startup capital taken from Individual borrowers is costly and terms of repayment is less flexible with high interest rate ranging from 50% to 200% with full repayment schedule of 2-3 months period. Formal financial institutions provide startup capital to 15% of women coffee brewers while 18% are using their own savings to start the coffee brewing business.

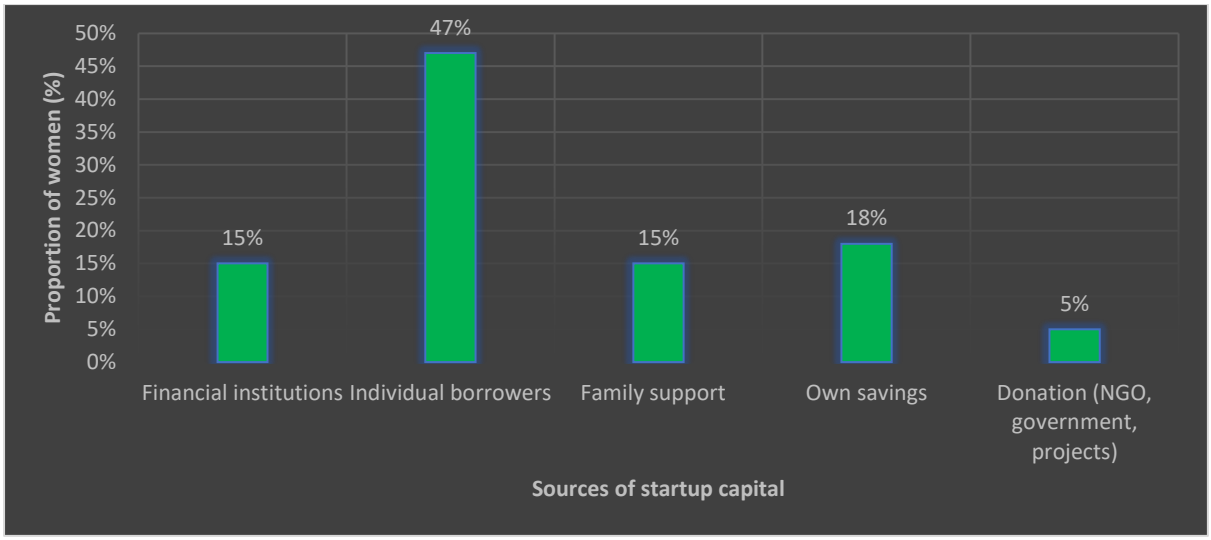


Figure 8. Sources of startup capital used by women coffee brewing business owners.

Access to loan is therefore key for women coffee brewers to start or expand their business. Despite their interest and willingness to take loan from financial institutions, only very few have taken loan to expand their business. Our data revealed that 75% of coffee brewing women need to take loan to expand their business while the remaining 25% are not interested to take loan due to mainly fear of risks associated with timely repayment of the loan. This is directly related to the risk aversion behaviour of the women who opt for not taking the loan due to fear of business failure. Of the total 75% of women who have expressed interest of taking loan, only 18% were able to take the loan due to lack of access or availability of loan providers for small business (34%), fear of risk of business of failure (16%), lack of collateral or mandatory saving (16%) and lengthy process to access the loan (6%) and the remaining 28% due to lack of information on the requirements and the process involved to apply and take the loan.

The economics of the women owned traditional coffee brewing small scale business.

The traditional coffee brewing business is small scale in general and the average amount of revenue generated on monthly basis ranges from ETB 1,650 up to ETB 45,000. The business is providing job opportunity for an average 0.5 individuals in addition to the business owner women themselves. This implies that each traditional coffee brewing enterprises has generated job opportunity for 1.5 number of individual citizens. In addition, the business a source of livelihood for about 1.7 number of family members. The traditional coffee brewing business has the potential to provide more job opportunities had there been adequate support services (training, loan access, sheds etc) that enhance competitiveness and quality of the service and service delivery.

Quality of the brewed coffee extremely vary in terms of quality which emanated from lack of knowledge on standard coffee brewing practices, some brew coffee with bitter taste coffee, some brew quite soft coffee, and the colour also varies. The lack of knowledge on quality standards and associated practices have been identified as major bottleneck to maintain customers. For example, from a kilogram of green roasted coffee, the number of cups of coffee produced vary extremely ranging from 20 to 120 standard coffee cup. None of interviewed women engaged in the traditional coffee brewing business have ever received any form of training on how to produce or brew quality coffee. All women, to brew coffee are using the traditional knowledge they inherited from parents and learnt from relatives or friends.

The traditional coffee brewing ceremony business comprises five essential cost components that constitute the total cost of coffee brewing: namely, *house (lot) rent, labour, green coffee,*

sugar, fuel charcoal, frankincense, popcorn, green grass, and water (table 15). The average net profit generated by coffee brewing businesswomen is estimated to be ETB 2,425 with the maximum ETB 3,350 and ETB 2,245. The profit margin is estimated to be 18%. The coffee brewing business in addition to self-employment opportunity is a profitable business venture. But due to the low scale operation the level of profit gained from coffee brewing business is not attractive. This has resulted in low level of satisfaction among significant proportion of women that are engaged in the traditional coffee brewing business. Limited access to finance, low level of knowledge in roasting and brewing quality coffee are most limiting factor for expansion of the coffee brewing business to a bigger scale.

Table 14. Profitability of traditional coffee brewing business

	Estimated cost and revenue per month (ETB)		
	Average	*Max*	*Min*
Cost			
House (lot) rent	*1,561*	*3,000*	*200*
Labour	*1,600*	*1,800*	*400*
Green coffee	*5,567*	*20,500*	*900*
Sugar	*2,351*	*5,500*	*600*
Fuel charcoal	*1,531*	*3,000*	*600*
frankincense	*597*	*1,600*	*240*
Green grass	*440*	*300*	*600*
Water	*320*	*550*	*215*
Cost Total	*11,285*	*38,650*	*3,755*
Revenue	*13,710*	*42,000*	*6,000*
Net Income (per month)	*2,425*	*3,350*	*2,245*

4.14 Key challenges and entry barriers of women in coffee value chain

Wide range of women interviewed in this study along the entire value chain have identified quite long list of challenges that undermine their contribution to the development of coffee industry in general. The changes are also barrier to women entry into coffee value chain. The most critical and prioritized challenges are the following:

- Limited women access to Extension service. Because of this, woman have low level of knowledge on improved knowledge, skill, and technologies on coffee production, processing, and marketing. While women make vital contributions to coffee farming, they lack knowledge of coffee farming activities. Ultimately, their limited access to information and training lowers the productivity of the coffee sector.
- Limited access to and utilization of financial services. World Bank gender strategy (2016-23) indicated increasing access to microfinance by 15% would reduce inequality by as much as 50%. Despite this fact the level of women access to financial services particularly access to loan/credit is very low. This is one of the most pressing challenges for all women along the coffee value chain, smallholder coffee producer women, processors, collectors, exporters.
- Limited women access to improved coffee cultivars or coffee seedlings. Main sources of seedlings are uncertified private seedling multipliers, private sector and own sources that are which turned out to be disease susceptible and poor yielding. Government nurseries are limited both in number as well as distribution capacity.
- Low access to market and market information

- There are also cultural and structural challenges that exclude women – lower control over resources, less ability to move freely, additional home responsibilities, and lower participation among married women.
- Poor linkages and collaboration between the public institutions and civil societies such as WiCE in harmonizing and harnessing efforts and resources towards addressing wide range of challenges of coffee producing women. Support giving actors tend to work in silos.
- Women access to market to earn appropriate income is very low. Women are forced to sell their coffee to collectors at lower prices in the village. Their low level of participation or membership of women at cooperatives is one reason for such scenario. Low access to market information has been also one contributing factor that forced women to sale low-paying buyers. Coffee producing women struggle with poor access to market information given they live in rural and remote areas and low level of support they are receiving from extension organizations. There are also cultural and structural challenges that exclude women – lower control over resources, less ability to move freely, additional home responsibilities, and lower participation among married women that limit their ability to market do intelligence, become member of cooperative and seek for assistance from support giving organizations that are located far from their village.
- Bureaucratic procedures of government offices, financial resources constraints (limited access to loan), limited knowledge and lack of technical support are all barriers that limited women entry in coffee large scale coffee production, processing, roasting and export.
- Shortage of work spacing for carrying out coffee roasting, processing, and exporting business is biggest challenge of all affecting women entry in coffee business. Carrying out these activities on rental land pose a high risk for the business sustainability due to highly volatile renal price and subsequent displacement. Any measure to be taken by the government to empower women working in coffee processing, roasting and export should target this challenge as top priority.
- Domestic roasters face the challenge of finding high-quality coffee because of ECX's mandate that the best coffee be exported. Additionally, because of high domestic demand and limited supply because of this export requirement, they also face high prices which sometimes exceed export prices.

5. Conclusion

Women were highly present in fieldwork, harvest, and sorting – the manual work required to produce coffee. However, they were less represented in trading, exporting, and analysis or lab work: they were laborer's, not decision-makers or business owners. Additionally, few women owned land or businesses.

Women plays crucial role and shoulder lion share of coffee value chain activities which indicate that they play pivotal role for functioning of coffee value chain. Despite their contribution in the entire coffee value chain, coffee producers' women are access to support services such as extension, advisory services, financial services, market access, coffee processing services is very limited. Women are more efficient and productive that male as it has been witnessed the average coffee productivity of women headed household is 30% higher male headed households. In the social context of rural areas women may head a household in case a principal male is missing, either temporarily due to internal or international migration or permanently due to divorce from or death of the male partner. Focusing exclusively on these

female-headed households, which make up 5-30% of rural households depending on location, results in overlooking the importance of understanding the relative position of women in male-headed households (Deere, Avarado and Twyman, 2012).

The average aggregate share of farm labor contribution of women across the entire coffee value chain (from inputs procurement up to marketing) has variation across study locations. The average women share of labor contribution in across the value chain is 65%. women make the highest proportion of labour contribution to coffee harvesting (83%), coffee retail marketing (71.75%), drying bed construction (67.2%), cleaning (62.6%) and pulping (62.5%). Our findings on the assessment of the role of coffee value chain is revealed that women contribution in coffee value chain is not limited to labour supply to undertake value chain activities but also entail wide range of wisdoms and knowledge that contribute for sustainable functioning and resilience of coffee value chain. All interviewed key informants have a common view that women have a long-accumulated wisdoms and knowledge that transcended generations making positive contribution for managing coffee genetic resources.

There are 6 coffee supply channels identified in the study sites. The level of involvement of women in these six supply chains vary depending on the nature of each supply chain. In each of these channels offers their own unique advantage and disadvantage to coffee producer women.

The extent of influence of coffee production constraints varies across study sites. For example, lack of access to processing facility, limited knowledge on modern coffee agronomy, lack of access to processing facility, limited knowledge on modern coffee agronomy and long distance are more severe constraints for women in Nekempti study sites. Whereas limited access to improve coffee varieties, lack of credit access, and limited knowledge on modern coffee agronomy are the most priority coffee production constraints of women in Yirgacheffe sites. Prioritization of constraints by study location is essential to devise location specific measures.

Low and unpredictable coffee price, limited access to improve coffee varieties, and limited knowledge on modern coffee agronomy are 1st, 2nd, and 3rd ranked top constraints affecting women coffee production across the study sites.

Training, advisory services and information access are an important method to enhance technical knowledge of women to productively manage their coffee farming. However, the proportion of women that received training on any aspect of coffee production and marketing is too low.

The data revealed that only 61% of coffee growing women need credit for their coffee farming. only 44% have access to it. Having access to credit does not mean that women can take the credit because of several factors. Taking loan could be influenced by risk behavior and other supply side constraints. The third level analysis investigates the proportion of women who received loan and the data indicates that of the total number of coffee producers' women with credit access, only 11% have taken the credit. the proportion of coffee grower women who have access to market information constitute only 40%. The remaining 60% do not have access to information on the prevailing market prices, do not have information on buyers where they can get better prices. They arbitrarily sell their coffee to buyers in the market or any to any collector that comes to their village.

The study reveals that only 41% of the coffee producer women carryout coffee processing using either washing, sun-dried or both methods. The highest proportion of coffee producing

women who undertake coffee processing at home is observed in Yirgacheffe (66%) and the lowest proportion is at Kelem wollega (14%). Of the total number of women that undertake coffee processing, 18% of them use washing method, 75% use sun-dried method and 7% use both methods. Most coffee producer women preference to dry-processing method because dry processing allows producers to store the coffee in their home and spread out the income over the season.

Women have control over only on 10% of the coffee value generated by coffee producing households, despite 65% of their labor contribution in the entire coffee production and marketing. Women are therefore, not receiving fair share of benefits from their engagement in coffee value chain.

6. Recommendations

The study identified several challenges and gaps in the coffee value chain that influenced coffee producing women in different context where the study was conducted. The study identified that women have lion share of role to play and they make significant contribution to the functioning of the coffee value chain. Enhancing their technical capacity will therefore be the fundamental leverage point for enhancing the overall efficiency of coffee value chain. However, coffee producer farmers are constrained with multiple and highly interrelated deterrent factors that limits their efficiency. The recommended actions identified below are derived from these challenges and gaps and relates to the specific circumstances of coffee producer women.

a. Improve collaborations between public institutions and civil societies to strengthen support service provision to coffee producing women.
b. Strengthen cooperatives and reorient their service provision model to reach women farmers with tailored services to address specific needs of coffee producer women. The cooperatives need to provide women with market information, credit, saving, insurance, inputs, (seedlings) and advisory services and trainings.
c. Strengthen and support out grower schemes to help women get access to better market, market information, improve their technical capacity and access to input and technologies.
d. Access to seedlings of improved coffee is a challenge for coffee producer women. Create nursery business program would have double advantage. The first is by creating access to improved coffee seedlings the other is self-employment opportunities for female to engage in nursery businesses.
e. The socio-cultural factors that limit women coffee producers and male extension workers interaction could be addressed through deploying women extension workers in the long run and using digital solutions (radio, mobile) to reaching women coffee producer with relevant extension advise in the short term. Civil association such as WiCE can play vital role in reaching women in coffee value chain with customized/tailored technical information using digital means.
f. There is also a need for building radio listenership habits among women which entail advising women farmers to listen scheduled radio programs that meet their specific information needs.
g. Use of female model farmers could serve as sort term strategy to address the shortage of female extension workers in the country. In this approach, model women could be selected, trained and mentored to provide advisory services to other coffee producing women in their village.

h. Woreda level targeting for extension service should be guided by principle that require both participation of women along with their spouse in any relevant technical trainings, field visits, or advisory services.
i. As a long-term solution, there is a need for change the prevailing harmful beliefs and attitudes and value that limited women movement and interaction with male extension services providers and their participation in development activities through series of community dialogues sessions.
j. There is a need for strong advocacy works to influence the government to provide special treatments and support for women engaged in coffee processing, roasting, export businesses.

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8. Annexes

8.1 Household survey questionnaire

QUESTIONNAIRE
Assessment of the Role of Women and Traditional Values and aspects of Coffee production and Brewing Ceremony

Note: Total of 50 women farmers will be interviewed 20 women from FHHH and 30 housewives from MHHH

Region:_____Woreda_____Kebele_____

A) RESPONDENTS CHARACTERISTICS

1. Respondent Specific Characteristics
   a) Name_____
   b) Age_____
   c) Education level_____ (years of formal schooling)
   d) Are you household head? 1=Yes 2=No
   e) Family size_____

B) COFFEE PRODUCTION RELATED ISSUES

2. Land holding size _____ (ha)
3. Amount of your coffee farm is occupied by improved coffee variety _____ha.
4. Do you apply improved coffee management practices such as pruning, mulching, tilling etc 1=Yes 2=No
5. Rank major constraints that limit your coffee productivity.
   5.1. Extent of disease and pest effect on your coffee productivity 1=High 2=medium 3=low
   5.2. To what extent limited access to improved coffee varieties (seedlings) is affecting your coffee productivity? 1=high 2=medium 3=low
   5.3. Extent of effect of drought on your coffee productivity? 1=High 2=medium 3=low
   5.4. Extent of soil fertility problem to your coffee productivity? 1=high 2=medium 3=Low
   5.5. To what extent does low input use (fertilizer) affect your coffee productivity? 1=High 2=medium 3=3=Low
   5.6. To what extent labor shortage is affecting your coffee productivity? 1=High 2=medium 3=low
6. Do you use fertilizer on your coffee farm? 1=Yes 2=No
7. Do you use compost or any other organic fertilizer on your coffee farm? 1=Yes 2=No
8. Have you ever used agrochemicals to control disease, pest or weed? 1=Yes 2=No
9. Average coffee yield obtained annually_____(quintal)
10. During the last 5 years, did you face coffee production lost due to natural factors such as drought, disease, or other factors? 1=Yes 2=No
11. If the answer is yes for the above question, what is the proportion of coffee production loss? 1=total loss 2=70-99% loss 3=50-69% loss 4=less than 50% loss
12. What is the main source of information coffee production technologies, inputs. Put in priority order.

Source of information about coffee production technologies and management	Rank
1=coffee experts (agr. office)	
2=Radio/media	
3=other farmers or relatives	
4=commercial farmers	
4=NGOs	
5=traders	
6=cooperatives	
7) others 1_____	
7) others 1_____	

13. What is your source of coffee seedlings?
    13.1. Government b) private nursery c) own source 4) other____
14. Rank major constraints of your coffee production and marketing.

Score: 1=Very high 2=high 3=medium 4=low 5=very low	
Constraints	**Severity score**
a) Disease (Coffee berry, coffee wilt etc)	
b) Insects	
c) Weed	
d) Drought	
e) Low and unpredictable coffee price	
f) Limited access to improve coffee varieties (seedlings)	
g) Lack of credit access	
h) Shortage of transport service	
i) High cost of inputs	
j) Lack of access to market information	
k) Lack of access to processing facility	
l) Labor shortage	
m) Poor soil fertility	
n) Poor storage facility	
o) Limited knowledge on modern coffee agronomy management	
p) Long distance to market	
q) Other constraint 1_____	
r) Other constraint 2_____	
s) Other constraint 3_____	

C) ROLE OF WOMEN IN COFFEE VALUE CHAIN (NOTE)[2]

Activities	How many total numbers of days does the activity take?	Participation/involvement level in percentage				
		Women	Men	Male children/ young	Female children/youth	Hired labor
15. Input Procurement (seed, fertilizer, seedling procurement)						
16. Sowing And Nursery Management						
17. Land Preparation for Coffee Planting						
18. Planting Activity						
19. Coffee Farm Management (weeding, stumping, shade regulation management) (per year)						
20. Harvesting (Per year)						
21. Transporting From Farm to Home (Per year)						

[2] Total number of days spent by women in coffee production and marketing process and calculate the percentage from the total labor days spent by women, men, children)

22. Sorting Operation (pe year)						
23. Drying Bed Construction						
24. Cleaning (Per year)						
25. Pulping (per year)						
26. Marketing Retail (per year)						
27. Marketing- Wholesale (Per year)						
28. Coffee Collection Activity from Village (per year)						
29. Marketing-Coffee Aggregation Activity						

D) Women coffee producers ACCESS TO SUPPORT SERVICES

30. Have you attended any training on coffee production, processing, marketing, or any other topics?
    1=Yes 2=No

Topics	Have you ever received training? 1=Yes 2=N0
a) Seedling preparation/nursery management	
b) Input use	
c) Coffee processing	
d) Coffee collection	
e) Coffee agronomic management	
f) Coffee diseases identification, control methods	
g) Cleaning/processing	
h) Coffee marketing	

31. If answer for qn #30 is yes, how do you rate level of your satisfaction with the training received?
    1=Very low 2=Low 3=Medium 4=high 5=Very high
32. How many times during 2023 have you contacted coffee experts or development agents for technical advice on coffee? _____
33. If already received advise from experts on coffee, how do you rate level of your satisfaction with the advice received?

    1=Very low 2=Low 3=Medium 4=high 5=Very high
34. Do you need credit/loan for coffee related purposes? 1=Yes 2=No
35. If want to take credit for coffee purposes, do you have access to it (availability) in your area?
    1=Yes 2=No
36. Have you ever received loan or credit for coffee related purposes? 1=Yes 2=No
37. Did you plant high yielder improved coffee variety? 1=Yes 2=No
38. Are you a member of coffee or any multipurpose cooperative? 1=Yes 2=No
39. Do you have access to market information? 1=Yes 2=No
40. What is the **main source** (#1 source) of market information?

    1=coffee experts (agr. office) 2=Radio/media 3=other farmers 4=NGOs 5=traders
    6=cooperatives 7) others (specify)_____

E) Coffee Processing, Market, Prices and Decision Over Coffee Income Utilization

41. Where do you sale your coffee most often **(explanation)**[3]? 1=village collectors 2=assemblers 3=wholesale buyers 4=exporters (or for exporter agents) 5=consumers on retail basis 6=others (specify)_____
42. Do you process your coffee cherries 1=Yes 2=No
43. If the answer is yes for the above question, which method do you use to process your coffee? 1=washing 2=sun-dried method 3=both
44. If you use both methods of processing what is the proportion of your total coffee harvest is processed using washing method?_____quintal/year
45. Do you get better price for washed coffee (washing method is viewed as having a more uniform and reliable flavor than sun-dried coffee and commands a higher price)? 1=Yes 2=No
46. Amount of storage losses (post-harvest loss)_____ quintal/year
47. Do you think you are getting good prices from your buyers? 1=Yes 2=No
48. How do you rate level of your satisfaction with the price you received for coffee?

    1=Very low 2=Low 3=Medium 4=high 5=Very high
49. What is the average price you received for kilogram of coffee_____(Birr/kg)
50. The average price per kilogram you received from sale of your coffee for the last 4 years

    2023 _____Br 2022 _____Br 2021 _____Br 2020 _____Br

51. Which months of the year do you normally sale your coffee (tick mark-multiple answer possible)

a)January	b)February	c)March	d)April
e)June	f)July	g)August	h)Sept
i)September	j)October	k)November	l)December

52. Who in the household decide utilization of coffee income? 1= dominantly by men 2= dominantly by women 3=exclusively by men 4=exclusively by women 5=Jointly
53. Did you engage in coffee out grower scheme? 1=Yes 2=No
54. From the total household income gained from coffee sale, what is the average amount of birr you have direct control? _____ Birr

8.2 Checklist for woreda level key informants

Data from woreda offices

1. Average landholding size in the woreda disaggregated by male and female headed households. Male headed household _____ha; Female headed household_____ha
2. Total population of the woreda: Male headed HHs_____Female headed HHs_____
3. Total land covered by coffee_____ha
4. Total amount of coffee produced and supplied to the central market or export_____qt
5. Average Coffee productivity by FHHH and MHHH
6. Total amount of coffee produced in the woreda/zone (CSA and woreda office)
7. Average yield per hectare for the last 5 years
8. Total coffee cooperatives members at the zone level: Male_____ Female_____
9. Total amount of coffee supplied to the coffee cooperative by women in 2022_____
10. Total amount of coffee the cooperative collected and supplied at zone level?

11. What are the different roles women are playing in coffee value chain? Fill the table below

Activities	How many total numbers of days	Participation/involvement level in **percentage**

[3] This is to investigate if women are selling their coffee to buyers that minimize their benefit sharing from coffee value chain. This is an important question that can be used as proxy indicator for the level of benefits women's benefits gaining from engagement in coffee value chain as producer.

	does the activity take?	Women	Men	Male children/young	Female children/youth
a) Input Procurement (seed, fertilizer, seedling procurement)	_____days				
b) Sowing And Nursery Management	_____days				
c) Land Preparation for Coffee Planting	_____days				
d) Planting Activity	_____days				
e) Coffee Farm Management (weeding, stumping, shade regulation management) (per year)	_____days				
f) Harvesting (Per year)	_____days				
g) Transporting From Farm to Home (Per year)	_____days				
h) Sorting Operation (pe year)	_____days				
i) Drying Bed Construction	_____days				
j) Cleaning (Per year)	_____days				
k) Pulping (per year)	_____days				
l) Marketing Retail (per year)	_____days				
m) Marketing- Wholesale (Per year)	_____days				
n) Coffee Collection Activity from Village (per year)	_____days				
o) Marketing-Coffee Aggregation Activity	_____days				

12. Cost structure of coffee value chain

Activities	**Total cost incurred.** (Estimated cost/ha)	**Average wage**	
		Women	**men**
Inputs procurement (seed, fertilizer, seedling)			
Sowing and nursery management			
Land preparation			
Planting			
Coffee farm management (weeding, stumping, shade regulation management			
Harvesting			
Transporting			
Sorting			
Drying bed construction			
Drying/cleaning			
Pulping			
Drying			
Marketing retail			
Marketing- wholesale			
Coffee collection from village			
Marketing-aggregators			

13. Number of village coffee collectors in the woreda_____ (how many are women_____
14. Number of coffee aggregators in the woreda_____ (how many are women_____
15. Number of Coffee processors in the zone_____ (how many are owned by women_____
16. Number of Coffee exporters in the zone_____ (how many are owned by women_____
17. Number of Coffee roasters in the zone_____ (how many are owned by women_____

18. How many coffee brewing enterprises are in the study locations? How many jobs are created?
19. What does seasonal coffee price variation look like?

January_____Br/Kg	February_____Br/Kg	March_____Br/Kg	April_____Br/Kg
June_____Br/Kg	July_____Br/Kg	August_____Br/Kg	Sept_____Br/Kg
September ___Br/Kg	October_____Br/Kg	November_____Br/Kg	December____Br/Kg

20. What are the barriers to entry for women in coffee production, collection, processing, roasting, exporting, coffee brewing?
21. Memberships in Coffee producers/exporters/ processors cooperative in **the zone**? Male members_____Female members_____
22. At what price collectors buy a kilogram of coffee from farmers?_____Br/Kg
23. At what price assemblers buy a kilogram of coffee from village collectors?_____Br/Kg
24. At what price processors buy a kilogram of coffee from village assemblers?_____Br/Kg
25. At what price exporters buy a kilogram of coffee from village assemblers?_____Br/Kg
26. What role do women play in preserving Ethiopian coffee genetics?
27. What are the major challenges women coffee producers facing?

8.3 Checklist for Coffee processors, assemblers, roasters, exporters

INTERVIEW WITH EWIC MEMBERS (3coffee exporters, 3 coffee growers, 3 coffee processors, 3 coffee roasters)

1. Which of the following coffee businesses that you are engaged in? (multiple answer possible)

a) coffee production	☐	b) collection	☐	c) wholesale buyer	☐
d)Coffee processing	☐	e) wholesale buying	☐	f) assembling	☐
g) roasting	☐	h) exporting	☐	i)coffee brewing	☐

2. Years of experience in the business.
3. Location of your business by region, zone woreda.
4. How many jobs are created under your business?

2023	_____	2022	_____	2021	_____
2020	_____	2019	_____		

5. What is your opinion on the history and role of women in the traditional coffee ceremony? What specific story can you tell?
6. What role did women play through the history of coffee in Ethiopia and what traditional values do the community hold of women working in coffee?
7. As a woman, what are the major challenges or constraints you are facing in the coffee business? [all aspects of challenges in whole coffee value chain, production, collection, processing, transporting, storing, roasting, out-grower scheme, export, any other?]
8. How do you evaluate the support service you get from various public institutions? What challenges are there in accessing the services? [probe technical, technological, financial, market, policy supports, infrastructure etc]

9. Trend in volume of coffee your business manages in quintal during the last 5 years (with reference to the answer on qn#1)?

2023	_____	2022	_____	2021	_____
2020	_____	2019	_____		

10. At what price the exporter buys a kilo of coffee from various suppliers, at what price assemblers buy kilo of coffee from village collectors, and at what price the collector buy coffee from farmers. [*Map the coffee value chain (based on the information obtained from the roasters, processors, exporters. (Show profit margin at each stage)*
11. Total revenue from sale of coffee during the last 5 years?

2023 _____ 2022 _____ 2021 _____
2020 _____ 2019 _____

12. What is the per kilogram cost of producing your coffee product?_____Birr
13. At what price do you buy coffee____Birr
14. At what price do you sell you final coffee product? _____
15. Do you have interest in getting a financial loan? 1=Yes 2=No
16. Have you ever taken a financial loan from any financial institution? 1=Yes 2=No
17. What is the source of initial capital to start the business?
    A) Financial institutions b) individual borrowers c) family support d) own savings e) donation (NGO, government, projects) f) others_____
18. If no, what are the reason for not taking loan?
19. How do you rate level of your satisfaction with the coffee business you are doing?
    1=Very low 2=Low 3=Medium 4=high 5=Very high
    Can you provide reason for the high or low score you provided?_____
    _____

8.4 Checklist for women engaged in the traditional Coffee brewing business.

CHECKLIST- III
Coffee brewing ceremony *(AA, Debre Zeit, Adama & Hawassa)*

1. Background about the coffee brewing women
    a) Town_____Kebele_____ (Telephone_____)
    b) education level 1=not literate 2=grade 1-6 3=grade 7-12 4)= Diploma/certificate/BSC degree 5=Masters degree 6) Other_____
    c) Area of the space used for coffee brewing business (area)_____m^2
    d) Initial capital (amount of capital you started the coffee brewing_____Birr
    e) how many times did you change places_____
    f) how many regular customers do you have _____
    g) Years of experience in the business_____
2. How much is your daily sales revenue_____Birr
3. Number of families members you support from coffee brewing income_____
4. How many jobs are created under your coffee brewing business?
5. Have you ever received training on coffee brewing? 1)Yes 2)No
6. How much cup of coffee do you make from a kilo of roasted coffee_____
7. At what price do you buy a kilo of coffee_____birr
8. Is the source of coffee you buy from regular customer? 1)yes 2=No
9. Do you need to get a financial loan to expand your business? 1=Yes 2=No
10. If yes, have you ever taken loan from any financial institutions? 1=Yes 2=No
11. If no, what are the reason for not taking loan?
    _____
12. What is the source of initial capital to start the business?
    B) Financial institutions b) individual borrowers c) family support d) own savings e) donation (NGO, government, projects) f) others_____
13. Daily average income from the business per day for coffee brewing ceremony: Max_____ Min_____ Average_____
14. Do you have savings?
15. If you have saving in birr, how much per month: Max____min_____average____
16. How do you rate the level of your satisfaction with the coffee business you are doing?

    1=Very low 2=Low 3=Medium 4=high 5=Very high

17. Cost structure of coffee brewing business:

Cost item	Amount in Birr

i. Rent (per month)
ii. Labor (per month if she employed assistant)
iii. buying raw coffee (cost per day)
iv. sugar (cost per day)
v. Frankincense (Itan) (per month)
vi. Other cost _____**Per day**
vii. Other cost _____**Per day**
viii. Other Cost_____**Per day**

18. What is the social, economic, value of coffee brewing ceremony?
19. What are the major challenges you faced in coffee brewing business?