

Women's involvement in coffee agroforestry value-chains

Financial training, village savings and loans associations, and decision power in Northwest Vietnam

Working Paper No. 340

CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS)

Elisabeth Simelton
Rachmat Mulia
Toan T Nguyen
Tuan M Duong
Hieu X Le
Ly H Tran
Lucia Halbherr



RESEARCH PROGRAM ON
**Climate Change,
Agriculture and
Food Security**



Working Paper

Women's involvement in coffee agroforestry value-chains

Financial training, village savings and loans associations, and decision power in Northwest Vietnam

Working Paper No. 340

CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS)

Elisabeth Simelton
Rachmat Mulia
Toan T Nguyen
Tuan M Duong
Hieu X Le
Ly H Tran
Lucia Halbherr

To cite this working paper

Simelton E, Mulia R, Nguyen TT, Duong TM, Le HX, Tran LH, Halbherr L. 2021. Women's involvement in coffee agroforestry value-chains: Financial training, Village Savings and Loans Associations, and Decision power in Northwest Vietnam. CCAFS Working Paper no. 340. Wageningen, the Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).

About CCAFS working papers

Titles in this series aim to disseminate interim climate change, agriculture and food security research and practices and stimulate feedback from the scientific community.

About CCAFS

The CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) is led by the International Center for Tropical Agriculture (CIAT), part of the Alliance of Bioversity International and CIAT, and carried out with support from the CGIAR Trust Fund and through bilateral funding agreements. For more information, please visit <https://ccafs.cgiar.org/donors>.

Contact us

CCAFS Program Management Unit, Wageningen University & Research, Lumen building, Droevendaalsesteeg 3a, 6708 PB Wageningen, the Netherlands. Email: ccafs@cgiar.org

Disclaimer: This working paper has not been peer reviewed. Any opinions stated herein are those of the author(s) and do not necessarily reflect the policies or opinions of CCAFS, donor agencies, or partners. All images remain the sole property of their source and may not be used for any purpose without written permission of the source.



This Working Paper is licensed under a Creative Commons Attribution – NonCommercial 4.0 International License.

© 2021 CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).

Abstract

Globally, in the coffee sector and smallholder agriculture in developing countries, there is a distinct gender gap in key factors that enable women's active participation in and contribution to the coffee value chain and in farm and domestic decisions, such as decisions over credit, agricultural inputs, and training opportunities and division of labor and time. This study assesses Village Savings and Loans Associations (VSLA) impacts and related training on gender equality and women's access to coffee markets in an ongoing coffee-project in northwest Vietnam. All 169 women in this survey received gender equality and finance training, with one group being members of a VSLA and taking out small loans. With Women's Empowerment in Agriculture Index (WEAI), women rated their perception of their decision-making power over a range of 18 tasks related to household and agricultural responsibilities and use of income and social activities over 18 months.

There were significant improvements in decision-making power in categories with previously low participation and increased sharing of domestic responsibilities. The categories with the biggest gains were decision-making over large purchases and use of income, especially for VSLA-members who sought out market information before engaging with potential coffee buyers and enhanced their negotiating abilities to arrange more favorable outcomes successfully.

These results indicate that active gender and finance training translated to real changes in gender dynamics, and membership of a VSLA also helped women improve their financial literacy and improve their negotiating abilities. Husbands to women in the study also began to reconsider gender roles and shift towards equal sharing of responsibility and decision-making with their wives.

Based on this study, we recommend (1) implementing gender and finance training and enabling access to loans for women as a means for their inclusion in agriculture value chains, and (2) engaging the whole household in gender training in order for all family members to be receptive to adjustments in the gender division of responsibility, labor and decision-making. The results indicate the conditions under which

women can benefit from activities involving agroforestry systems that also enhance carbon sequestration for climate change mitigation compared to coffee monoculture.

Keywords

Women's Empowerment in Agriculture Index (WEAI); Robusta; coffee agroforestry; decision power; gender equality.

About the authors

Elisabeth Simelton, PhD, is a climate-change scientist at World Agroforestry (ICRAF), based in Vietnam and was the principal investigator of the project, involved in the design of surveys and fieldwork and lead author of the report.

Rachmat Mulia, PhD, is an environmental statistician at World Agroforestry (ICRAF) and led the design of farmers perceptions of ecosystem services and analyzed the endline data and co-authored the report.

Toan Thi Nguyen is a research assistant and World Agroforestry (ICRAF) and conducted endline survey fieldwork, database management, and made preliminary analyses.

Tuan Minh Duong is a research assistant and World Agroforestry (ICRAF). He conducted the fieldwork and analyzed baseline results, instructed the training of trainers on agroforestry and gender power dynamics and participatory training videos. He co-authored the report.

Hieu Xuan Le is the TEAL portfolio manager at Care. He overviewed the TEAL-project and co-authored the report.

Ly Huong Tran is a TEAL project staff at Care. She instructed the training of trainers on village savings and loans associations and power dynamics training, was involved in fieldwork.

Lucia Halbherr is a researcher at the Water Systems and Global Change group of Wageningen University & Research (WUR) in the Netherlands. She co-authored the report.

Acknowledgements

This work was implemented with funding from the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), which is carried out with support from the CGIAR and through bilateral funding agreements. The research was funded by CCAFS Flagship on Low-Emissions Development, synthesis and support. The TEAL-project is funded by The Australian Department of Foreign Affairs and Trade (DFAT). The agroforestry training material is co-produced with the Breedcafs project funded by EU Horizon 2020.

The authors would like to thank their respective organizations and CCAFS for their support of this work. We are grateful to Nozomi Kawarazuka and Philippe Vaast, who provided invaluable advice at the onset of the project. We are grateful for constructive comments from Arun Khatri-Chhetri and Sophia Huyer, which helped improve this paper's scope. Last, we are indebted to the farmers who took the time to share their experiences in focus group discussions and surveys.

Contents

Acronyms	2
1 Introduction	3
2 Methods	5
2.1 Project background	5
2.2 Study area.....	6
2.3 Trainings and capacity building	6
2.4 Data collection and analysis	8
3 Household characteristics	10
3.1 General characteristics of participant households	10
3.2 Gender involvement.....	12
4 VSLAs in enhancing gender equality and women’s access to markets	14
4.1 Impacts on women’s decision-making power.....	16
4.2 Shift in decision-making power dynamics.....	21
4.3 Impact on women’s negotiation in the coffee value chain.....	24
5 Discussion.....	26
6 Recommendations	30
References	31

Acronyms

FGD	Focus-group discussions
GALS	Gender Action Learning System
ha	Hectare
m	Meter
mm	Millimeter
SAA	Social Analysis and Action
VSLA	Village Savings and Loans Associations
WEAI	Women's Empowerment in Agriculture Index

1 Introduction

Vietnam is the second-largest coffee producer globally, with 1.6 million metric tons produced and an export value of USD 3.3 billion in 2018 (Workman, 2019). Traditionally, Robusta (*Coffea canephora*) is grown in Central Highlands, while Arabica (*Coffea arabica*) was introduced in Northwest Vietnam in the mid-1990s. About 85% of Vietnam's total coffee area for domestic consumption and export depends on smallholder farms, approximately 640,000 smallholdings, 63% of which comes from farms smaller than one hectare (ICO, 2019). The importance of coffee is also a reflection in the Nationally Determined Contributions (NDC), where coffee agroforestry is expected to contribute to national mitigation targets (Mulia et al., 2020; The Socialist Republic of Viet Nam, 2020).

In 2018, Vietnam ranked number 118 in the UNDP Gender Inequality Index, which measures reproductive health, empowerment, and labor market participation, after Southeast Asian neighbors Thailand and the Philippines (UNDP, 2018). Although women make up a significant portion of the agricultural workforce in Vietnam, gender inequality can be seen through differential access to resources such as land, finance, technology, training, markets and extension services (FAO, 2019). In the coffee sector in Vietnam¹, women play a key role in coffee cultivation, processing and marketing (IFC, 2014). However, they are often excluded from training and other development opportunities. Women also face a double burden in terms of labor; unlike men, they are expected to fulfill domestic tasks on top of agricultural activities. There are gender differences in the agricultural division of labor as well, with men performing more physically demanding tasks and women more meticulous and time-consuming activities (FAO, 2019). This additional workload and demand on women's time is known as time poverty and is one of the primary drivers of women's disempowerment in agriculture (Alkire et al., 2013). Furthermore, due to gendered labor distribution within the home and in agriculture, rural women are disproportionately adversely affected by climate

¹ IFC 2014. Integrating Women into the Coffee Supply Chains in Indonesia and Vietnam. International Finance Corporation. https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/publications/integrating_women_into_coffee_supply_chains_indonesia_vietnam

change. Many upland communities in Vietnam with ethnic minority backgrounds often have even stronger gendered cultural traditions than the lowland Kinh majority (Neef, Schwarzmeier, 2001). These disparities put women in the northwest of Vietnam in disadvantaged positions to take an active part in, and contribute to, improvements in all stages of the coffee value chain.

While there is limited research on gender differences in the coffee sector in Vietnam, these findings are in line with research on the coffee sector at a global level that shows a distinct gender gap in land ownership, control of assets, access to credit, market information and agricultural inputs, training and leadership opportunities, and decision-making abilities (SCA, 2018). Inequality has important consequences for coffee productivity and closing the gender gap through improved knowledge, skills and assets would help women attain higher yields and profits and increase their resilience to market and climate shocks and fluctuations (ICO, 2018; SCA, 2018). According to the Food and Agriculture Organization (FAO), if women had the same access to technology, information and assets as men, the agricultural output could increase by 20-30% (FAO, 2011).

Access to rural credit is often listed among the top factors limiting agriculture development in Vietnam and agroforestry in particular (Simelton et al., 2016). The Village Savings and Loans Associations (VSLA) are revolving funds with optional amounts of savings, an interest rate for loans, regular meetings, and training for members. They are designed for groups of women and offer loans with unrestricted use, which can be contrasted with Community Innovation Funds, which are designed for groups of households (women and men interchangeably) but require a start-up fund and restricts the loan for investments in climate-smart agriculture (Le et al., 2018). Evaluations of VSLAs in Africa after 2-3 years have shown diverse outcomes on household poverty (Bannor et al., 2020), investments and agriculture outputs (Ksoll et al., 2016), but with positive impacts on female empowerment (Karlán et al., 2017). To our knowledge, the VSLAs have never been evaluated in Vietnam.

This working paper deals with improving gender equality in low-emissions development in agriculture in Vietnam. Specifically, we study the role of gender training and membership of VSLA in enhancing gender equality and women's access to coffee markets in the northwest region of Vietnam over a project period of 1.5 years.

2 Methods

2.1 Project background

The research discussed in this working paper was conducted between April 2018 and November 2019 in Northwest Vietnam, as an add-on to the ongoing “Technologically Enhanced Agricultural Livelihoods” (TEAL)² project, which started in 2017. The TEAL project is being implemented among 2,600 direct beneficiaries in Son La and Dien Bien provinces with the aim to enable ethnic minority women to establish sustainable, resilient, and profitable livelihoods in the Arabica coffee value chain.

The purpose of this study was to investigate the impact membership of VSLAs and training has on finance and gender awareness to enhance women’s participation in the coffee value chain. The training also included coffee management with agroforestry as an opportunity to enhance adaptation and mitigation co-benefits. There were two groups in the study: women who joined a VSLA at the start of the project, and women who were not members of a VSLA. Both groups received gender and finance training.

The VSLA model³ was first introduced in Vietnam in 2008 after promising results in Africa. Currently, over 500 VSLA groups have been established with over 10,000 members. The Vietnam Women’s Union has also committed to promoting VSLA development.

VSLAs have also been implemented to enhance the uptake of climate-smart agriculture practices. Preliminary evaluations show that 2-3 years after the projects have ended, nine out of ten VLSAs still operate with high loan repayment rates. Membership in VSLA is voluntary, and prior to joining, there is an information event in the village. The savings groups comprise 15 to 30 people. Members meet regularly to contribute savings and participate in financial skills training. Savings are secured in a lockable cash box, with three keys and key-holders. When the group has saved sufficient funds, loans are made available

² <https://www.care.org.vn/wp-content/uploads/2018/07/TEAL-project-brief-English.pdf>

³ CARE Project brief VSLA https://www.care.org.vn/wp-content/uploads/2018/04/VSLA-Overview_CARE-Vietnam-Visa-project_Final.pdf

to members for household and micro-enterprise use, and loans are repaid with interest at a pre-agreed rate. Members pool savings with deposits increasing up to 60% annually, which gives them the opportunity to access additional financial products and services.

2.2 Study area

This study was implemented in two communes in Muong Ang district, Dien Bien province, and two communes in Mai Son district, Son La province. The provinces are in Northwest Vietnam, with a mountainous landscape between 300 to 1,200 meters (m) above sea level. The climate is sub-humid tropical, with an average annual temperature of 21°C and annual total rainfall from 1,200 to 1,600 millimeters (mm) (Pham et al., 2018). Landscapes with steep slopes are prone to flash floods and landslides, and frost damage is common during winter. The region is home to many ethnic groups, including H'mong, Khang, and Thai people, who traditionally have been shifting cultivators, then shifted to monoculture maize, upland rice and cassava, and cash crops in recent decades. As a strategy to improve rural livelihoods, Arabica coffee was first introduced in the northwest region in 1995, and by 2016 the area covered approximately 12,000 hectares (ha), 75% of which was in Son La (Pham et al., 2018), and unconfirmed records suggest the area in 2018 reached 21,600 ha, with 80% in Son La. The provincial average coffee productivity in 2016 was 1.14 t ha⁻¹ in Son La and 1.03 t ha⁻¹ in Dien Bien (green bean)⁴. Local coffee prices paid to farmers in 2019 ranged between VND5,500 to 7,000 per kg⁻¹ cherry in both provinces.

2.3 Trainings and capacity building

The training components consisted of gender roles, financial literacy and coffee agroforestry training, each lasting 1-2 days. The gender and financial literacy training were offered to both VSLA and non-VSLA members, while the agroforestry training was only provided to VSLA members. The non-VSLA members served as a control group in the first year. The key project activities are listed in Table 1.

⁴ The conversion rates range between 1 kg green bean = 4.5 kg fresh cherries (i.e., 22% (MARD) to 1:6.7kg, i.e., 15-18%).

Table 1. Project activities 2018-2019

Month	Activity name	Number of participants	Comments
Jul, Aug 2018	Gender training Part 1: Understanding gender expectations and stereotyping of men and women	150 VSLA members 150 non-VSLA members	Husbands were invited, approx 1/3 joined. More people were trained than included in this study.
July 2018	Coffee-based AFS management: Introduction, establishment and management: Pruning, Fertiliser, Pest and disease management	30 key members of 10 VSLA groups	12 commune staff from 4 communes were trained as training of trainers
Sep 2018	Coffee-based AFS management: Harvesting, Processing and Storage	30 key members of 10 VSLA groups	12 commune staff from 4 communes were trained as training of trainers
Sep, Oct 2018	Gender training Part 2: Gender division of labour and decision making at home and in coffee production	150 VSLA members, 150 non-VSLA members	Husbands were invited, approx 1/3 joined.
Oct, Nov 2018	Financial literacy	150 VSLA members, 150 non-VSLA members	More people were trained than included in this study.
Feb, Apr 2019	Gender training Part 3: Financial decision making and use of income	150 VSLA members, 150 non-VSLA members	Husbands were invited, approx 1/3 joined. More people were trained than included in this study.
Mar 2019	Coffee-based AFS management: Establishing a new coffee-based agroforestry system, in detail	30 key members of 10 VSLA groups	12 commune staff from 4 communes were trained as training of trainers
Mar, Jul 2019	Financial literacy	150 VSLA members, 150 non-VSLA members	More people were trained than included in this study.

Gender training sessions were rolled out by CARE Vietnam (www.care.org.vn) and local partners, namely the Center for Community Development in Dien Bien, commune-level Agricultural Extension, and Women's Union staff in Son La, between July 2018 and July 2019. The curriculum was adapted from the Social Analysis and Action (SAA) and Gender Action Learning System (GALS)⁵ curriculum. The SAA uses participatory tools to achieve the long-term goal of empowering vulnerable communities through the advancement of equitable gender, social, and power norms. GALS involves a series of visual tools for livelihood

⁵ Gender Action Learning System (GALS) is a community-led empowerment methodology developed by Oxfam, which aims to give marginalized women and men more control over their lives and catalyze changes in value chain actors. <https://vietnam.oxfam.org/latest/policy-paper/gals-manual-phase-i-and-phase-ii>

mapping and value chain development that enable participants to reflect on their current beliefs and practices and challenge gender norms.

Financial literacy training was conducted to try to increase women’s participation and decision making in financial matters such as investments in coffee production and improve outcomes in coffee sales negotiations. The training was conducted using CARE’s financial literacy training. There were four main elements to the training: keeping records of incomes and expenses, understanding different categories of expenses, principles of expense management, and principles for better savings. The agroforestry training was developed by World Agroforestry (ICRAF) and Northern Mountainous Agriculture and Forestry Science Institute as a training of trainers to commune extension and 30 members from each of the ten different VSLA groups who then returned trained and with manuals and participatory videos to their peer groups.

2.4 Data collection and analysis

The study draws on two household panel surveys: a baseline study conducted in April 2018 prior to the training and implementation of VSLAs and an endline study in November 2019 following completion of the project. A total of 169 female VSLA and non-VSLA members were interviewed (Table 2).

Table 2. Female respondents in household surveys in Dien Bien and Son La provinces in 2018 and 2019

	Dien Bien		Son La		Total
	VSLA	Non-VSLA	VSLA	Non-VSLA	
No. of respondents	47	22	68	32	169

e baseline and endline studies each comprised eight focus-group discussions (FGD) (one female and one male group per commune with 5 to 10 participants per group) and a semi-structured household survey. The topics and questions in the FGDs and questionnaires remained the same in the baseline and endline, with the addition of a number of questions on coffee management in the endline questionnaire. Households for the survey were randomly selected based on geographical location and represented a cross-section of the community, from different age groups, education levels and social statuses. Non-VSLA members were selected among households who were considering forming VSLA-groups after the termination of the project.

The FGDs covered six topics: (i) livelihood mapping, (ii) gender division of labor, (iii) decision making, (iv) market mapping (characteristics and relationship between coffee value chain actors), (v) information sources for various stages in the coffee value chain, and (vi) tree ecosystem services and functions. The questionnaire covered five parts: (i) general household characteristics, (ii) description of the coffee plot(s), (iii) coffee business, (iv) key indicators to capture women's empowerment in the coffee (agroforestry) supply chain using TEAL and Women's Empowerment in Agriculture Index (WEAI) (Akter et al., 2017; Buvinic et al., 2020), and (v) off-farm or non-farm incomes and access to finance.

The questionnaires were prepared and reported using Open Data Kit on Android Tablets. Descriptive and quantitative analysis of data was done using SPSS Version 23. Analysis of Variance (ANOVA) was used to test the difference in central value among groups, for example, between the two study provinces or between VSLA and non-VSLA groups. The respondents within and between the groups were assumed to be independent due to random household selection and all groups having homoscedastic variance. Least-square and linear regression were used to analyze the correlation between dependent and one or more independent variables. Paired samples T-test was performed on variables for the same households to discern significant differences between the baseline and endline surveys.

3 Household characteristics

3.1 General characteristics of participant households

Farmer characteristics

The age of the respondents ranged from 21 to 65, with the average age being mid-thirties. Most respondents belonged to the Thai ethnic group. The education status differed; in Dien Bien, 70% of the respondents had up to primary schooling, and 25% had completed middle or high school, while it was the opposite in Son La (26% and 72%, respectively). Less than five of the 169 respondents had vocational or university education.

Land

The households' farm size ranged from 0.03 to 8.3 ha in the baseline survey, including home gardens, agriculture (food crops), coffee, and forestry. The main annual crops produced were rice, cassava and maize in both provinces. The average farm size was smaller among the surveyed households in Dien Bien compared to Son La, particularly among the non-VSLA households. For example, Dien Bien had double the number of households with less than 0.5 ha, while Son La had double the number of farms sized 1-2 ha (Table 3).

Coffee cultivation

All interviewed households were growing the Arabica cultivar *Catimor*. Most respondents had 5 to 10 years of experience in growing coffee. Before converting to coffee, Dien Bien's land was used for maize, cassava, rice, or was fallow. In Son La, half of the coffee area was converted from cassava, followed by maize, and less than 10% from fallow land. On average, coffee took up about three-quarters of the coffee-growing households' total agricultural land, indicating a high degree of specialization. The average yields (fresh cherries) among the surveyed households were about 6 t ha⁻¹ in Dien Bien and slightly higher in Son La, which translates to around 0.9-1.3 t ha⁻¹ green bean.

Table 3. Characteristics of coffee growing households from baseline and endline surveys (n = 169).

Province	Dien Bien		Son La	
	VSLA (n=47)	Non-VSLA (n=22)	VSLA (n=68)	Non-VSLA (n=32)
Average farm size (ha)	0.64	0.44	1.09	1.06
Share coffee of total land use (%)	66 ± 3.7	64 ± 5.3	70 ± 3.5	78 ± 3.3
Share income from coffee to total farm income (%)	73	79	82	90
At least one person in off-farm job (%)	67		37	
Temporary off-farm jobs (%)	49		26	
	47	55	26	25
Permanent off-farm jobs (%)	25		18	
	28	18	16	22
Off-farm incomes from: <i>Only the wife (%)</i>	10		7	
	13	5	7	6
<i>Wife and husband (%)</i>	10		1	
	11	9	0	3
<i>Only the husband (%)</i>	36		28	
	36	36	29	25
<i>Other family members (%)</i>	17		8	
	15	23	6	13

Coffee as proportion of income

Coffee was the main source of farm income in both provinces. Coffee production was a more important contributor to household income in Son La than in Dien Bien, with almost all households stating that coffee contributed to more than 40% of income, compared to about three-quarters in Dien Bien. In both provinces, coffee contributed to a slightly higher share of income in non-VSLA households than VSLA households. In the baseline, coffee contributed to about 73-74% of the farm income in Dien Bien, and 85% of VSLA-households and 93% of non-VSLA households in Son La. In the endline, there was an insignificant change among non-VSLA households, while for VSLA-households it increased to 88% in Son La and reduced to 63% in Dien Bien.

Off-farm income sources

Off-farm income sources were twice as common in Dien Bien than Son La, especially from “other family members,” such as children and in-laws, and through temporary jobs. Typical jobs included construction, teaching, government officer, and home-based small-scale business. Seasonal employments lasted from a few weeks to 3-4 months.

3.2 Gender involvement

Women and men were involved in all stages of coffee production. The gendered roles in coffee production and agriculture are detailed in Table 4. The FGDs revealed a strong tendency to divide tasks based on perceived gender strengths. Tasks denoted as physically “heavier” were performed by men (e.g., digging holes for planting seedlings, raking fields, spraying chemicals, and transporting coffee berries). Tasks denoted as physically “lighter” and “requiring attention and careful hands” were performed by women (e.g., preparing soil bags for seedlings, pruning, weeding, and picking coffee). However, if men were absent or busy, women would take up “men’s tasks” and vice versa. Women reported doing tasks requiring physical strength, such as carrying heavy loads of water and fertilizer uphill. Thus, women are not only able to carry out heavy tasks but routinely perform them as well.

Women suffered more from time poverty in comparison to men. Women spent more hours every day on domestic activities than men, while men attended community meetings to a larger extent than women did. Women’s hours were also often confined to more repetitive and time-consuming tasks. For example, housework, pruning, weeding and fertilizer application were all performed by women, while men’s time was more easily freed up for off-farm jobs to earn cash income. Gender dynamics in the sphere of housework and income generation are thus interlinked. For housework, there was a sense of “sharing the workload.” For example, while women prepared dinner, men chopped banana trunks for pig feed; while women bathed children, men fed the chickens. Yet, both women and men acknowledged that women took more of the workload, particularly women who reported having to spend extra hours for housework before, after, or in-between income-generating activities. Women were regarded as responsible for small livestock, which can be considered a natural extension of domestic work as smaller animals’ main purpose is for household consumption or emergency cash.

Women and men also have different roles regarding marketing and selling coffee. While women buy and sell food at the local market, it is primarily men who sell coffee and purchase agricultural inputs. The FGDs indicated that men tended to be responsible for tasks involving technical planning, such as calculating the number of seedlings or fertilizer needed for a unit area of coffee, determining what type of agrochemicals to buy and how to use

them. Women were perceived both by men and themselves as incapable of performing these tasks, as they lack the knowledge and networks that men have.

Besides more often being involved in off-farm jobs, men generally took more opportunities to join technical training, traveled further, and had more contacts with agricultural traders and extension services. Women, therefore, depended on men for those tasks, which could restrict their participation in the coffee value chain. In the FGDs, both women and men expressed interest in encouraging women to have more access to knowledge and skills that would enable them to be more proactive.

Table 4. Gender division of labour in Dien Bien and Son La

Activity		Gender division of labour
Coffee	Preparing soil	♂
	Preparing seedlings	♀♂
	Taking care of coffee nursery	♀♂
	Digging holes for planting coffee	♂
	Weeding	♀
	Pesticides/herbicide spraying	♂
	Pruning and thinning	♀
	Grinding coffee seeds	♀♂
	Picking coffee berries	♀
	Transporting	♂
Livestock	Collecting grass for livestock	♀
	Grazing/herding cattle/bullocks	♀♂
	Cooking rice bran for pigs	♀
	Feeding pigs/chickens	♀
Marketing	Going to market (purchasing food)	♀
	Purchasing seeds/seedlings	♂
	Purchasing agricultural inputs	♂
	Selling agro-products (crops, livestock, fish at the market)	♀
	Selling vegetables	♀
	Selling coffee	♂
Other non-farm activities	Do construction work: building house, livestock sty, pond	♂
	Work as a hired labour	♀♂
	Off-farm job: construction worker, carpentry tasks	♂
	Making traditional alcoholic beverages	♀
	Join community meetings	♂
Domestic activities	Collecting firewood for cooking	♀
	Chores: preparing meals, washing, cleaning, etc.	♀
	Bringing and picking up from children from school	♀♂

♀: Women only ♂: Men only ♀♂: Both women and men (Source: FGD April 2018)

4 VSLAs in enhancing gender equality and women's access to markets

Baseline characteristics of VSLA vs non-VSLA households

Prior to starting the project, we tested whether the non-VSLA and VSLA households were significantly different from each other. First, we explored whether household characteristics determine membership. In the baseline survey, VSLA membership and farm area were the only significantly correlated variables among the eight variables of farm area, agro-diversity, number of coffee plots, education, household size, off-farm income, off-farm income invested in agriculture, and debt. More specifically, VSLA-members' farm area was positively correlated with larger household size, while non-VSLA members' farm area was positively correlated with off-farm income invested in agriculture. Thus, non-VSLA households had a greater proportion of absent family members who sent home remittances. Furthermore, as reflected in Table 3, the share of income from coffee was higher in the non-VSLA group.

Second, as VSLA membership was voluntary, we hypothesized that the most "progressive" households with women who felt free to take part in social activities and meetings would be more likely to join VSLAs. We, therefore, investigated differences in terms of decision-making power between the VSLA and non-VSLA groups. However, we found no significant difference (one-way ANOVA) in self-assessed decision-making power between the two groups, nor between the two provinces.

Perceived benefits of VSLA membership

The primary benefit stated by VSLA households of the VSLA membership was to save money and get access to loans (Figure 1). Access to finance was important to members since most respondents did not have a bank account. The endline study showed that over the 1.5 years of project implementation, VSLA households borrowed on average VND49.7 million \pm 3.6 million from banks and VND3.3 million \pm 0.7 million from the VSLA. Bank loans have a lower interest rate than VSLAs, at 9.8% \pm 0.9 and 13.2% \pm 0.7, respectively. Thus, the VSLAs were preferred for short loans, as confirmed by husbands to women in the VSLAs who said that the association provides loans for urgent needs with less complicated procedures compared to bank loans. Most households did not have bank accounts; however, the number of

households with bank accounts increased during the project period: in Dien Bien among VSLA members from 4% to 14% of the households, among non-VSLA members from 1% to 6%. In Son La the number of bank account holders increased from 3% to 4% among VSLA-members and from 0% to 5% among non-VSLA members. Despite so few bank accounts, which is not necessary for cash bank loans, the number of households with bank loans in Son La increased from 51% to 59% among the VSLA-member while non-VSLA members remained the same at 23% in both baseline and endline. In contrast, in Dien Bien the number remained the same at 65% among VSLA members and reduced among non-VSLA members from 31% to 26%. The VSLA-households with loans from VSLA increased from 4% to 11% in Dien Bien, and from 10 % to 38% in Son La.

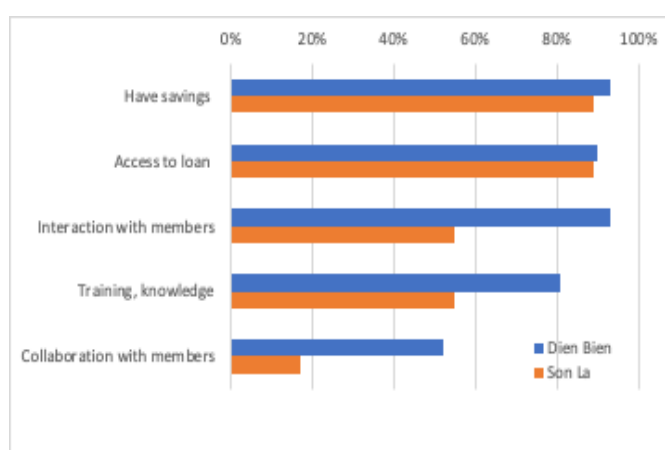


Figure 1. Women's perceived benefits from joining a VSLA (multiple answers possible; (n = 47 for Dien Bien, n = 68 for Son La). Source: endline survey 2019

A perceived benefit from joining the VSLA was interaction with other members, followed by increased knowledge and collaboration with members. This benefit was more important for VSLA members in Dien Bien than in Son La. The difference might be explained by the fact that Dien Bien is less developed than Son La, with lower education levels, more remote farmer groups, and more recent coffee establishments. Thus, it is likely that more women in Dien Bien saw VSLA membership as an opportunity to actively learn and increase their social interaction. This is supported by the meeting attendance between the two provinces, with a quarter of women in Son La attending occasional meetings, compared to only 9% of women in Dien Bien.

4.1 Impacts on women's decision-making power

The baseline household survey showed similar results for both provinces regarding the extent to which women felt they had power in decision-making processes. Although women usually kept the household cash, there was considerable variation in decision-making ability between the other areas of responsibility (Figure 2). To facilitate analysis, we merged some of the response categories to form three groups: 'no and little power,' 'some power' and 'major and full power.' Overall, the paired sample T-test shows a significant increase in power for all 18 decisions included in the WEAI, and an equalization in decision-making power between different tasks. Specifically, in the baseline, there was more variation in decision-making power between tasks (e.g., about 30% with some or more power for larger purchases compared with 80% with some or more power for domestic tasks). In the endline, this equalizes to a certain extent with all tasks ranging between 60-90% of women with at least some power (Figure 3).

Women said they had the most autonomy and decision-making power on "small and household purchases" related to everyday needs of the family, such as food and clothes (tasks 1-3). Some 50-60% of women reported 'full or major power' in this category in the baseline. However, some women did report challenges when many small purchases amounted to a larger sum that they had to justify to their husbands later. "Small and household purchases" was the category with the least change after the project, with slight decreases in 'full or major power' and 'little to no power' and increases in 'some power.' This could indicate that men were now starting to share in the household responsibilities.

For more costly "larger purchases" (tasks 4-7), few women in the baseline had 'full or major power' to make decisions on their own. Many women discussed these decisions with their husbands, and some consultations also involved other family members, such as in-laws. The majority of women reported 'little or no power.' This changed significantly after the project and was the category with the biggest increase in decision-making power (Figure 3). The number of 'little or no power' decreased from over 50% to around 20% in the VSLA group, with 'some power' increasing to over 50%. The significant increase in 'some power' indicates a sharing of responsibility between men and women regarding larger purchases.

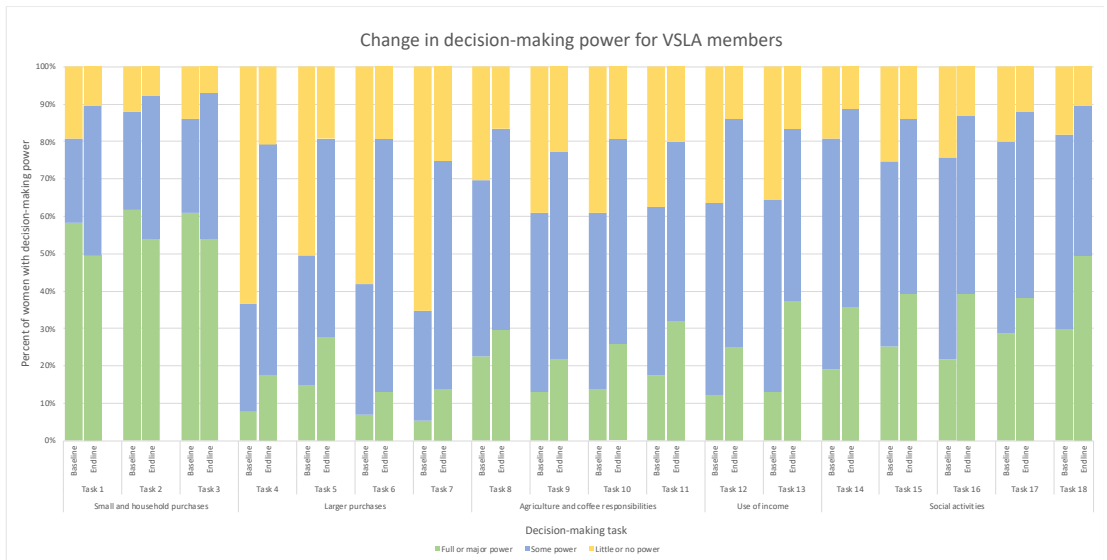
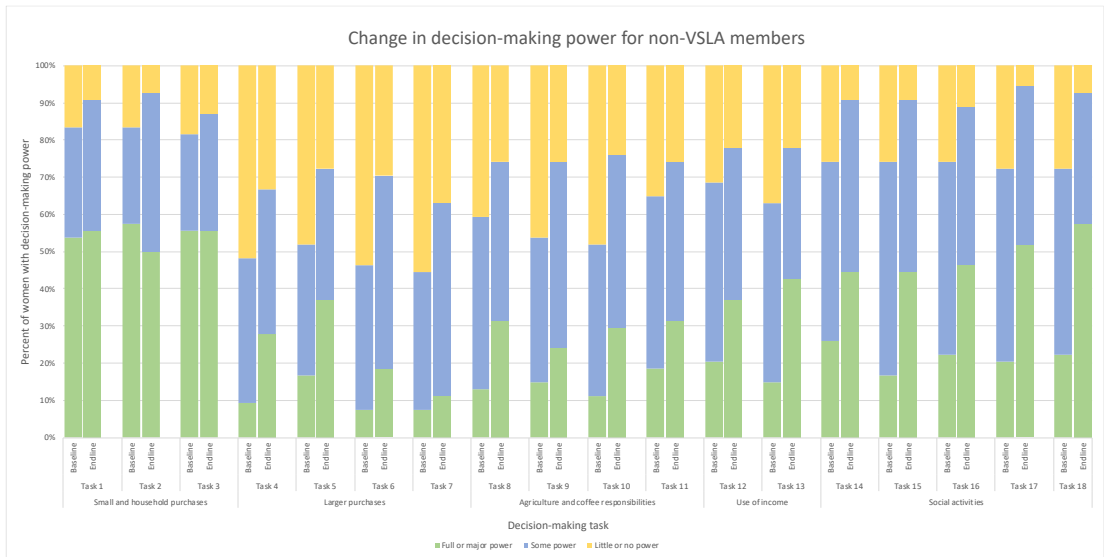


Figure 2. Changes in women’s decision power over tasks between non-VSLA (top) and VSLA (bottom) groups in Dien Bien and Son La (Task code see Box 1, n=169). Green = full or major power, blue = some power, yellow= little or no power. Source: baseline and endline surveys 2018 and 2019.

Box 1. Women's decision-making power over tasks***Small and household purchases***

1. Purchase of daily household supplies, food
2. Purchase of clothes for family members
3. Small purchases (e.g., cooker, plates)

Larger purchases

4. Larger purchases (e.g., furniture)
5. Purchase of mobile phones
6. Purchase for transportation, vehicles (e.g., motorbike)
7. House construction and reparation

Agriculture and coffee responsibilities

8. Purchase of seeds, animal breeds
9. Investments for farm income generating activities (e.g., purchase of farmland, cattle)
10. Investment in coffee production
11. Selling agricultural produce

Use of income

12. Using incomes earned from coffee
13. Using incomes earned from off-farm

Social activities

14. Children's education
15. Gifts for relatives and friends
16. Attending weddings and festivals
17. Attending community meetings
18. Participation in other social/professional activities (e.g., farm clubs)

For 'agriculture and coffee' activities, most women said they have 'little' or 'some' power over buying seeds, animal breeding, investing in coffee or selling agricultural produce (tasks 8-10) in the baseline, with usually less than 20% reporting 'major or full power.' Additionally, around a third of women reported having 'little or no' power to sell agricultural produce, including coffee. Given that coffee contributes a major share of household income, a large amount of farm income was thus filtered through men before being handed over to the wife.

After the project, there were important reductions in the number of women who said they had 'little or no' power for all the agricultural activities. The proportion of women with 'major and full power' increased by up to threefold, with the biggest increase for decisions regarding investments in coffee production (task 10) from 11% to 30% for non-VSLA households and 14% to 26% for VSLA households. This indicates that women are taking greater responsibilities in coffee production as a result of the project.

Women also reported increased decision-making power over the use of incomes earned from coffee production (task 12). This was especially the case for VSLA members, with 'little to no power' decreasing by more than half, from 36% to 14% after the project, and being

replaced with 'some' or 'full or major power.' For non-VSLA members, 'full or major power' increased to 37%. Regarding income earned from off-farm work (task 13), common baseline survey responses in the 'no-power' group were that "the earner gets to decide what to do with that income." On the other hand, a number of the women who reported 'some power' said that "the decision is made together," regardless of who is earning the income from off-farm work. There was a significant increase in the endline survey of women having 'full or major power' over off-farm work income (from around 15% to around 40%) and a decrease of women with 'little or no power.' Such a significant shift in decision-making ability over income shows that women are being given more fiscal responsibility. Interestingly, increased fiscal responsibility was greater in the non-VSLA group than in the VSLA group, with around 40% non-VSLA members reporting 'full or major power' over the "use of income" in the endline.

In the "social activities" category (tasks 14-18), most women reported 'some power.' For example, children's education (task 14) was one of the most important decisions that required both parents' discussion. Some women who reported 'major and full power' in social activities said that when their husbands are away on off-farm work, they may have to make instant decisions and inform husbands later. The project seemed to significantly affect decision power in all five types of social activities, especially participation in other social or professional activities such as farm clubs, with an over doubling increase in 'major or full power' for non-VSLA households from 22% to 57%. There were also significant decreases in 'little or no power.' Overall, non-VSLA members showed a higher increase in social participation than VSLA members.

VSLA vs non-VSLA

The trends and results between the VSLA and non-VSLA groups were generally similar; however, there were some notable differences between the two groups. The baseline survey indicates that women who joined VSLAs were, on average, already had more power over household, agricultural and social tasks than those who did not join VSLAs (Figures 3, 4). However, they had less power than the non-VSLA group over larger purchases and use of income.

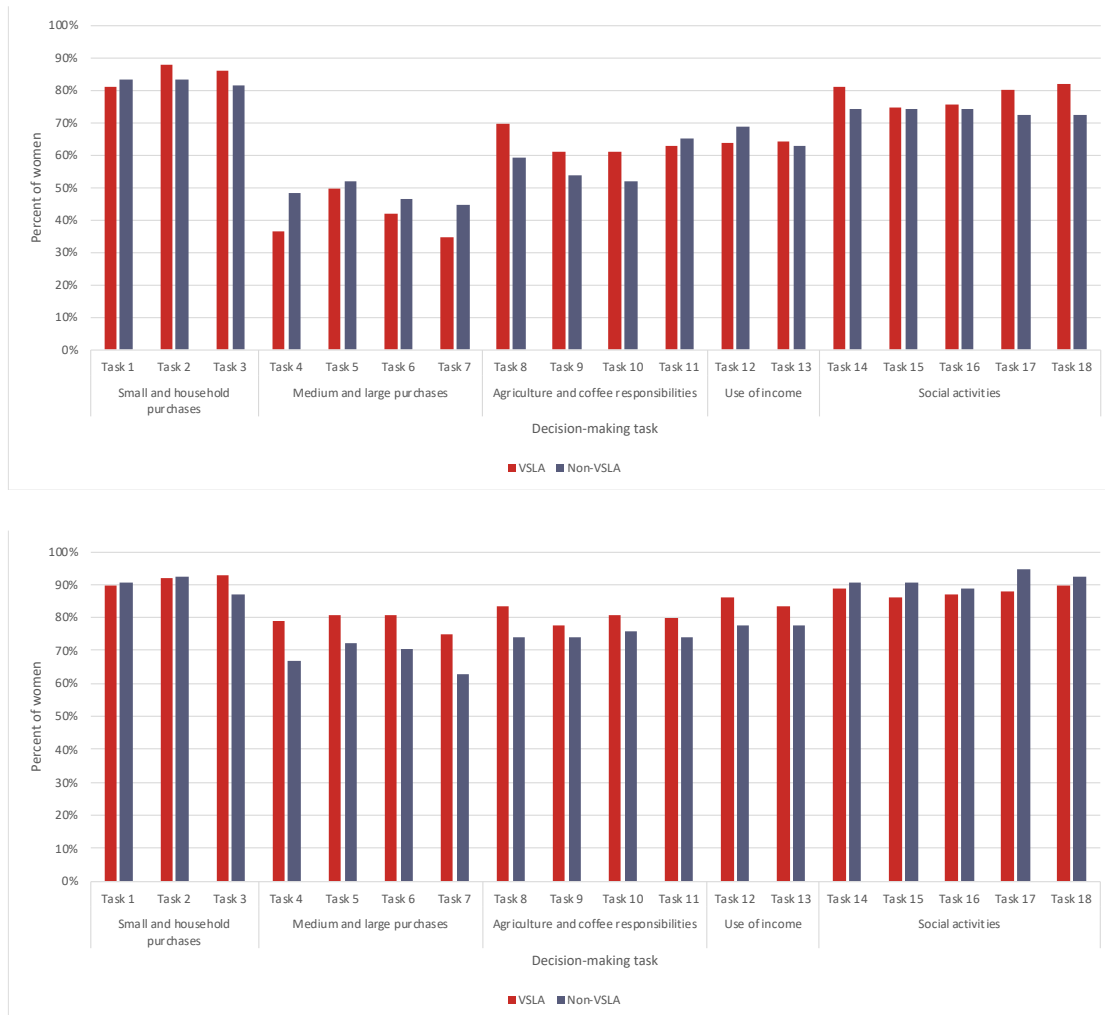


Figure 3. Percentage of women with "full," "major" or "some" decision-making power in the VSLA vs non-VSLA groups for the a) baseline and b) endline. Source: baseline and endline surveys 2018 and 2019.

After the project, there was a greater difference between VSLA and non-VSLA members in their relative decision-making power (up to 7% difference in the baseline vs. up to 11% difference in the endline). In the endline, VSLA women had higher decision-making power for all tasks except social activities. While the relative difference in agricultural decision-making stayed the same (6% higher than non-VSLA women in the baseline and the endline), the VSLA women experienced notable improvements for 'larger purchases' and 'use of income,' significantly overtaking non-VSLA women in these categories. This indicates that women who joined VSLAs gained considerable fiscal responsibility compared to women who only obtained gender training. On the other hand, non-VSLA women overtook VSLA women in social activities. The latter may appear surprising but confirms our hypothesis that the VSLA women already had 'power' to join social activities, such as the VSLA -meetings. Thus,

meeting and discussing with other women encouraged non-VSLA women to participate in social activities. The results are interesting because they present evidence that the training alone on gender awareness and finance made significant differences and that the VSLAs further enhance decision power.

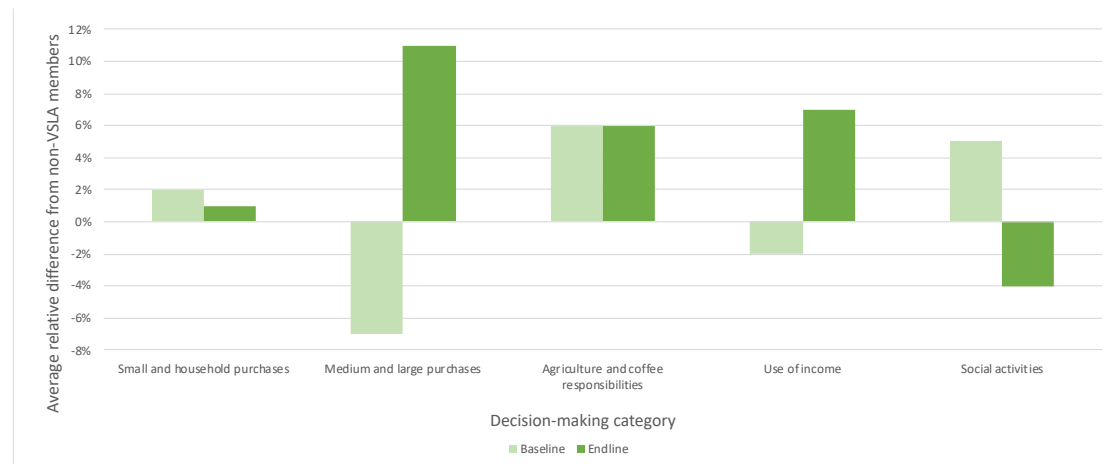


Figure 4. Average relative difference in decision-making power for VSLA members (over non-VSLA members) in the baseline vs the endline for each decision-making category. Source: baseline and endline surveys 2018 and 2019

Impacts on men

The FGDs with women in the VSLA groups revealed more clearly than the non-VSLA women that they had shared gender training messages with their husbands. Some men who joined the gender training (Table 1) later contributed more to domestic work, while others were reluctant to join the training. In FGDs with husbands to women in VSLAs, the men said they stayed at home more and did housework, while in FGDs, men with wives in non-VSLA groups thought that the current task sharing was reasonable. This difference in men’s attitudes also supports the hypothesis that the VSLA women and men were more equal or that the VSLA women could execute more power in their relationships. This was also reflected by the differences between VSLA and non-VSLA women. The slight decrease in decision-making power in ‘small and household purchases’ for the VSLA group suggests that more domestic tasks were shared between husbands and wives.

4.2 Shift in decision-making power dynamics

At the beginning of the project in the FGDs, all men and nine of ten women said that because men are the head of the households, they should make the most important

decisions in the household. Although women and men do discuss decisions, many acknowledged that men often have the final say. Male respondents stated that they generally trusted their wives with tasks they do well. However, one prevailing perception was that women were not capable of performing certain tasks as they lacked the knowledge for and networks that men possessed. For example, women often reported 'no power' regarding decisions in spheres they did not know much about (e.g., mobile phones), did not use frequently (e.g., motorbikes), or lacked information for (e.g., material for house repair), both surveys and FGDs revealed.

Women in the baseline-FGD stated that they primarily exchanged information with their neighbors when they meet at the market or in the fields. Topics discussed the covered price of inputs and coffee selling prices to technique guidance on coffee production (e.g., fertilizer use and identification of pests and diseases). Women preferred to receive information indirectly via their social circle rather than through direct contact with the seller as men usually do. Men had more diversity in their preferred income sources and were more likely to access formal and official information sources, such as coffee companies and extension. This difference in information access and limited knowledge in certain spheres affected women's agency and ability to make decisions regarding those matters.

Fully capturing gender roles in coffee production requires the explicit consideration of the distinct ways in which women and men spend their time. Some key changes observed throughout the project included:

- 1) Increased awareness among the participants about different social expectations and pressures on men and women. For example, the common expectations of men are to be the breadwinner and of women to take care of the household and care for children and the elderly.

"These expectations create stress for both men and women. If we [men] cannot fulfill such expectations, we feel useless, embarrassed, and as if we are not true men." (male).

"There are too many expectations on women. So many that it is almost unrealistic to fulfill all of those." (male)

- 2) Increased realization among approximately three-quarters of the participants that women's tasks may be less physically demanding than men's, but more time-

consuming and repetitive. Women gave responses such as *“If it is possible, I prefer to not maintain these gender expectations,”* while men’s responses could be summarized as *“these can be changed but need time. If compared to our grandparents’ generation, things have already changed.”*

- 3) About nine out of ten of the participants said they became more aware of women’s roles and time allocation. There was a gradual shift from the belief that housework does not count as work in terms of its importance and the time it takes, towards a few men stating that *“doing housework on top of farm work is physically demanding,”* that *“while housework might not generate income directly, it is important for sustaining the household as a whole.”* After realizing that many women underestimated the number of hours they work every day, women were more willing to ask men to share the workload, including housework, to get some rest.

“Women don’t really get to rest, like myself, I have small children, I always have to take care of them, cooking and cleaning. Men don’t have to do those things.”
(female)

“During the harvesting season, I have to wake up earlier to do housework and do it quicker, and then continue at noon. I don’t have time to take a lunch nap during those days.” (female)

Encompassing the gender awareness training within the VSLA training package provided a safe environment and opportunity for spouses to start dialogues on changes they wanted to make. To inspire and help others, a few women shared how they now make decisions with husbands:

“I explain why we need one thing first instead of another, and we will set a tentative time in the future when we can potentially afford the other one.” (female)

Some women became aware of assets that could save time and labor, such as a washing machine or machines for farm work. Both women and their husbands in Dien Bien also highlighted that women had gained knowledge about coffee management, especially fertilizer use, pruning, pest and disease.

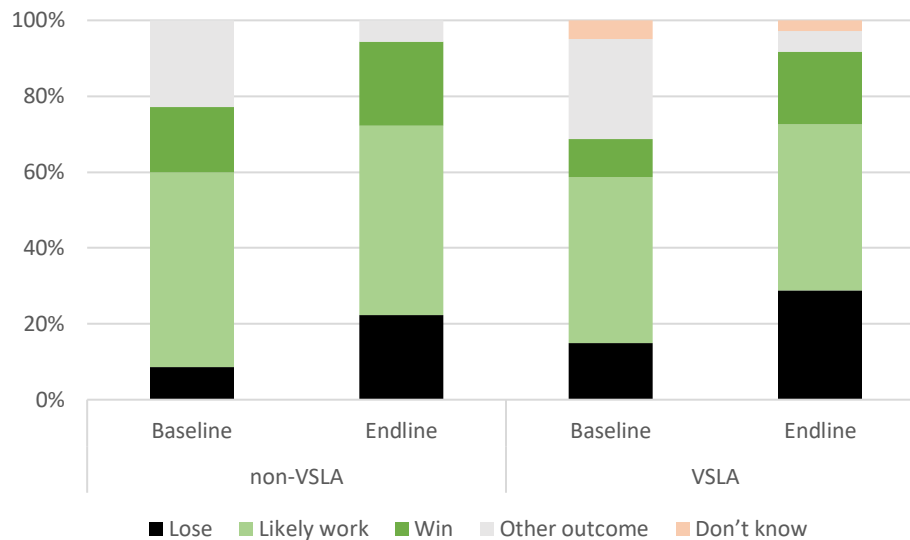


Figure 5. Results of negotiation outcomes as perceived by women in Dien Bien and Son La provinces (n=169). Source: Household surveys baseline and endline 2018 and 2019.

4.3 Impact on women’s negotiation in the coffee value chain

Women’s perceived success in coffee sales negotiations was measured pre- and post-project. In Son La, there was a reduction in the number of women who negotiated in coffee sales, from 40 to 27%, and in Dien Bien from 57 to 43%. The reasons for this, women said, were that coffee prices were fixed *a-priori*, and even after the training, they saw no point in negotiating. Therefore, the reduction in attempts to negotiate may be due to women realizing the futility of negotiation through their increased involvement in coffee production and coffee marketing activities over the course of the project. Coffee prices also declined over the course of the 1.5 years of the project⁶, which was a recurring topic of dissatisfaction. However, women’s and men’s response strategies differed. The husbands to women in VSLAs said that women tried to negotiate even when selling smaller amounts, while men made quick deals to return home faster. According to the FGDs with non-VSLA women and their husbands, they were disappointed about the negotiation processes with middlemen and the coffee prices. Figure 5 shows that the share of women who would win a negotiation increased in both VSLA and non-VSLA groups.

⁶ <https://www.reuters.com/article/vietnam-coffee/vietnams-2018-2019-coffee-output-to-fall-sharply-industry-body-idUSL3N20S2GN>

When asked about the results of coffee sale negotiations in the endline survey, responses were mixed. There were fewer “don’t know” and “other result” responses (which included “sometimes a loss, sometimes a win”) in the endline, and more “lose” or “likely win” or “win.” Win, in this regard, can also be viewed as being able to resist a given price. The shift away from “don’t know” responses could suggest an increase in awareness of negotiation outcomes. However, as both losing and winning results increased, there is no conclusive result regarding negotiation outcomes for coffee sales. In contrast, buying agricultural inputs, the separate FGDs with VSLA women and their husbands, and non-VSLA women all showed increased satisfaction with their negotiation outcomes.

One significant change between VSLA and non-VSLA women regarding negotiation skills is that VSLA-members said in the endline that they now asked fellow farmers to orient them regarding market prices before contacting middlemen, something the non-VSLA women did not do. The VSLA women also said their negotiation skills had improved in terms of getting a partial advance pay and the remaining share according to market prices, rather than lowering the remainder, as they had previously done. There was also an increased demand for market information from all groups. This demand was higher than for agro-climate information, as many women already used weather forecasts to plan agricultural activities.

5 Discussion

The purpose of this study was to explore whether gender training and membership of savings and loan associations could enhance gender equality and women's access to coffee markets in northwest Vietnam.

First, the results show that both control (groups of women receiving only training) and VSLA-members rated higher in the WEAI after the project. This indicates that the training contributed to men and women's increased awareness of the inequality regarding the distribution of labor and access to information and resources that disadvantage women in terms of time and ability to make decisions and carry out tasks. Women were entrusted with tasks that they can do well, but women did not always have the resources and knowledge required to carry out all tasks. This increase in awareness seemed to correspond with a shift in women's perceived decision-making power, as captured by the endline survey.

For 18 tasks in the WEAI, ranging from household decisions where women had the most power to large purchases where women had the least power, we found significant shifts towards greater equality and shared responsibility. Also, the variation in decision-making power between the different tasks significantly evened out. Over 60% of women now have at least 'some' level of decision-making ability in all tasks, including those that before had little power. Such positive contributions to female empowerment were also found in evaluations of VSLAs in Africa after 2-3 years (Karlan et al., 2017). Specifically, women also gained responsibility within the coffee value chain, increasing their say over investment decisions and the use of coffee income. Similarly, the training encouraged men to reevaluate their own role in the gendered division of labor and nudge them towards an equal sharing of responsibility and decision-making. This suggests that gender-sensitive targeting and active gender awareness training translated to real changes in gender dynamics and that key gender gaps (ICO, 2018; FAO, 2019) in decision-making power and labor distribution can begin to shift relatively quickly (Simelton et al., submitted).

Second, the VSLAs helped to create a sense of belonging to a group, returning benefits to women in terms of skills and self-esteem and access to loans. Both VSLA and non-VSLA groups received gender training and showed similar improvements in gender equality and

decision-making power. However, there were some notable distinctions between VSLA and non-VSLA groups. The VSLA women had significant increases in the “larger purchases” and “use of income” categories, where they had previously lagged behind non-VSLA women. Overall, after the project, VSLA women had more decision-making power in all categories except social activities. The question of whether women identify as farmers in the way that men do, or more as ‘helpers,’ brings up the complexity of women’s roles and differing social expectations to men (Galiè et al., 2013; Kawarazuka, Prain, 2019; Simelton et al., submitted). In this study, some women were perceived both by men and themselves as incapable of performing certain tasks, such as purchasing vehicles and other large investments. Their absence of knowledge is measured against men’s greater knowledge. This difference is often due to men’s superior information networks through off-farm jobs, agricultural traders and extension, or relatively higher attendance of training (Kawarazuka, Prain, 2019). When women depend on men for decisions on certain tasks, such as purchases or sales, their work and participation in the coffee value chain may be delayed or restricted.

Notably, women’s decision making power increased in coffee production in both VSLA and non-VSLA (Task 10-12, Figure 1-3), which holds strong promises for strengthening women’s roles across coffee value chains – something that has been maintained by several organizations (ICO, 2018; SCA, 2018; FAO, 2019). This project shows that VSLA-members enquired with fellow farmers about market prices prior to contacting middlemen, which the non-VSLA women did not do. The VSLA women were also able to negotiate partial advance payment with the remainder according to market prices, rather than reducing prices, as they had done before. These findings suggest that membership of a VSLA can play an important role in helping women improve their financial literacy, gain financial responsibility and improve their negotiating abilities (Figure 5), as in this case, they were more confident in other price negotiations than coffee. The skills also benefited other domestic and farm activities than coffee.

Third, the training and group learning activities seem to have contributed to more certainty about decisions. The WEAI over farm decisions improved in both non-VSLA and VSLA groups, including decisions over what tree species to combine in coffee agroforestry systems. This project provided agroforestry training to the VSLA members. However, similarly to the fixed coffee prices that had left some unable to practice their coffee price negotiations skills,

households with established coffee plantations, we're unable to convert to agroforestry immediately. This study shows that training resulted in more certainty about tree species for coffee agroforestry, which may contribute to future conversion and diversification. This study focused more on women's financial inclusion in coffee value chains. A range of empowerment indicators improved in both control groups and savings groups; thus, we conclude that the training alone can make important progress in less than two years. Like the Africa contexts (Ksoll et al., 2016; Karlan et al., 2017), evidence of some welfare indicators is contextual (e.g., here fixed coffee prices, introducing perennial trees in existing coffee plantations) and requires time to show evidence on actual household incomes and assets.

Finally, the training and VSLA membership results indicate how women can benefit from activities involving agroforestry systems that also enhance carbon sequestration for climate change mitigation. However, women's roles in contributing to carbon sequestration as a co-benefit of agroforestry could be further strengthened. A larger parallel study in Northwest Vietnam revealed that women and men have limited awareness about trees' impacts on coffee quality, despite having considerable local knowledge about trees' ecosystem services and roles for adaptation (Nguyen et al., 2020). Although both women and men prioritized planting trees with high economic benefits in coffee-based agroforestry, there was inconclusive evidence as to the gendered difference in preferred tree species and potential implications for carbon sequestration if women had more decision power over tree species. For example, while women in central Vietnam and Indonesia preferred agroforestry with fruit-producing trees targeted at household needs, men opted for timber-producing trees for economic reasons (Duong et al., 2016; Sari RR et al., 2020). However, in Northwest Vietnam, studies showed no such evidence (Nguyen *et al.*, 2020). The consequence could be negative impacts on the climate change mitigation potential, as tentative results show that coffee agroforestry system with fast-growing timber trees, such as *Leucaena leucocephala* or *Melia azedarach*, sequester about five times as much carbon as coffee agroforestry with fruit

trees, such as plum or longan, at about the same age⁷. In future work we will draw further on this study to compare the mitigation planned in Vietnam's NDC, which included coffee agroforestry in the revised 2020-version (Mulia et al., 2020), with scenarios where women and men are involved in the design of coffee agroforestry systems.

⁷ Preliminary estimates from Dien Bien show that the average above-ground carbon sequestration from coffee monoculture system was 7.0 tCO₂e, from coffee-fruit tree agroforestry 12.1 tCO₂e, and coffee-timber agroforestry was 52.4 tCO₂e (at about 7 years old trees and with coffee aged 8, 13 and 10 year for monoculture, coffee-fruit tree, and coffee-timber tree respectively). Results from Son La and Dien Bien are both being further analyzed at the time of completing this paper. Please contact the lead author for further information.

6 Recommendations

Family farms are businesses that involve most household members. Regardless of VSLA membership, gender awareness and finance training helped narrow the gap for important financial decisions in both household and agriculture spheres and showed that women could benefit from agroforestry activities that benefit climate change mitigation to monoculture coffee. Therefore, we recommend:

- (1) Implementing fiscal management trainings for women as a means to increase their involvement in the household and farm economics.
- (2) Engaging the whole household in gender trainings in order for husband, wife and surrounding family members to be receptive to adjustments in the gender division of responsibility, labour and decision-making. As time poverty and labour shortage influence decisions, the timing of trainings and new interventions needs to consider constraints to equal opportunities for participation.
- (3) Scientists and extension workers should explicitly consider gender issues in all general development activities, such as information dissemination or technical workshops, in order to further ensure women's independence and avoid reinforcing existing drivers of inequality.

References

- Akter S, Rutsaert P, Luis J, Htwe NM, San SS, Raharjo B, Pustika A. 2017. Women's empowerment and gender equity in agriculture: A different perspective from Southeast Asia. *Food Policy*, 69:270-279.
- Alkire S, Meinzen-Dick R, Peterman A, Quisumbing A, Seymour G, Vaz A. 2013. The Women's Empowerment in Agriculture Index. *World Development*, 52:71-91.
- Bannor RK, Oppong-Kyeremeh H, Derkyi M, Adombila AY, Amrago EC. 2020. Village savings and loans association participation and impact on off-farm income among rural women. *Journal of Enterprising Communities: People and Places in the Global Economy*, 14:539-562.
- Buvinic M, O'Donnell M, Knowles JC, Bourgault S. 2020. Measuring Women's Economic Empowerment. A Compendium of Selected Tools. Center for Global Development.
- Duong MT, Simelton E, Le VH. 2016. Participatory identification of climate-smart agriculture priorities. CCAFS Working Paper 175. Copenhagen, Denmark: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). Available online at: <http://hdl.handle.net/10568/75542>
- FAO. 2011. The state of food and agriculture 2010–2011: Women in agriculture, closing the gender gap for development. Food and Agriculture Organization of the United Nations, Rome.
- FAO. 2019. Country gender assessment of agriculture and the rural sector in Viet Nam. Food and Agriculture Organization of the United Nations, Hanoi.
- Galiè A, Jiggins J, Struik PC. 2013. Women's identity as farmers: A case study from ten households in Syria. *NJAS - Wageningen Journal of Life Sciences*, 64-65:25-33.
- ICO. 2018. Gender equality in the coffee sector. An insight report from the International Coffee Organization ICC-122-11. London, UK: International Coffee Organization (ICO).
- Karlan D, Savonitto B, Thuysbaert B, Udry C. 2017. Impact of savings groups on the lives of the poor. *Proceedings of the National Academy of Sciences (PNAS)*, 114:3079-3084.
- Kawarazuka N, Prain G. 2019. Gendered processes of agricultural innovation in the Northern uplands of Vietnam. *International Journal of Gender and Entrepreneurship*, 11:210-226.
- Ksoll C, Lilleør HB, Lønborg JH, Rasmussen OD. 2016. Impact of Village Savings and Loan Associations: Evidence from a cluster randomized trial. *Journal of Development Economics*, 120:70-85.
- Le T, Simelton E, Le V. 2018. Community Innovation Fund from implementation to scaling out of climate-smart agriculture practices. Facilitator guide. Wageningen, The

- Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).
- Mulia R, Nguyen DD, Nguyen MP, Steward P, Pham VT, Le HA, Rosenstock T, Simelton E. 2020. Enhancing Vietnam's Nationally Determined Contribution with Mitigation Targets for Agroforestry: A Technical and Economic Estimate. *Land*, 9:528.
- Neef A, Schwarzmeier R. 2001. Land Tenure Systems and Rights in Trees and Forests: Interdependencies, dynamics and the role of development cooperation Case studies from Mainland Southeast Asia Division 4500 Rural Development. GTZ, p. 112.
- Nguyen M, Vaast P, Pagella T, Sinclair F. 2020. Local Knowledge about Ecosystem Services Provided by Trees in Coffee Agroforestry Practices in Northwest Vietnam. *Land*, 9:486.
- Pham TV, Mulia R, Dinh TH. 2018. Potential mitigation contribution from coffee agroforestry in three regions of Viet Nam. World Agroforestry, Hanoi.
- Sari RR, Saputra DD, Hairiah K, Rozendaal DMA, Roshetko JM, M vN. 2020. Gendered Species Preferences Link Tree Diversity and Carbon Stocks in Cacao Agroforest in Southeast Sulawesi, Indonesia. *Land*, 9:108.
- SCA. 2018. Gender equality and coffee: minimizing the gender gap in agriculture. An SCA White Paper. Specialty Coffee Association (SCA), Essex, UK and Santa Ana, US.
- Simelton E, Catacutan D, Dao CT, Dam VB, Le DT. 2016. Factors constraining and enabling agroforestry adoption in Viet Nam: a multi-level policy analysis. *Agroforestry Systems*, 91:51-67.
- Simelton E, Duong TM, Houzer E. Submitted. When the 'strong arms' leave the farms - migration, gender roles and risk reduction in Vietnam. *Sustainability*.
- The Socialist Republic of Viet Nam. 2020. Updated Nationally Determined Contribution (NDC) to the Paris Agreement under the UNFCCC. Hanoi, Viet Nam.
- UNDP. 2018. Human Development Data (1990-2018), Human development index (HDI). Human Development Reports. United Nations Development Programme (UNDP).
- Workman D. 2019. Coffee export by country. Available online at: <http://www.worldstopexports.com/coffee-exports-country/>



RESEARCH PROGRAM ON
**Climate Change,
Agriculture and
Food Security**



The CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) brings together some of the world's best researchers in agricultural science, development research, climate science and Earth system science, to identify and address the most important interactions, synergies and tradeoffs between climate change, agriculture and food security. For more information, visit us at <https://ccaafs.cgiar.org/>.

Titles in this series aim to disseminate interim climate change, agriculture and food security research and practices and stimulate feedback from the scientific community.

CCAFS is led by:

Alliance



CCAFS research is supported by:

