

Intensification of cocoa in the Peruvian Amazon: Gender relations and options for deeper engagement by women

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Abstract

Despite the important role women play in on-farm cocoa production activities, little is known about the influence of efforts to intensify production on gender roles and women's empowerment. We examined gender roles in asset ownership, productive and domestic activities and household decision-making as well as women's interest and time constraints in cocoa production following an intervention to intensify cocoa production in the region of the Valleys of the Rivers Apurimac, Ene and Montaro (VRAEM), Peru—an area which has suffered from years of social conflict, resulting in households having abandoned their farms. We collected sex-disaggregated data from 61 structured, household interviews and conducted informant interviews with NGOs, cocoa buyers, and governmental officials to verify and clarify the findings. The results revealed that cocoa intensification programs have contributed to enhanced cocoa productivity and household income. Nonetheless, many households had failed to replicate this economic success outside of cocoa; nearly a third of them were dependent on cocoa as their only source of income.

Women have played an important role in intensification of cocoa production. They often engage in the same tasks as men, and tended to be involved in making decisions on how the earnings from cocoa production were spent. However, women were largely excluded from making decisions on the marketing of cocoa and the purchase and sale of land and major farm equipment. Because of differentiated gender roles, women were expected to complete all domestic activities, leaving them with little time to be involved in on-farm activities and participate in trainings and cooperative meetings, even though many women displayed a strong interest in cocoa production. Many women also felt uninformed about meetings, the provision of technical assistance and market conditions. Recommendations for building more gender inclusive value chains include using mobile phones to share production information, market prices and meeting times; forming women and youth groups and training and hiring women technicians. Results also suggest an opportunity to move beyond the promotion of only cocoa to a diversity of economic activities that are important for women and the finances of smallholder households in the VRAEM.

Introduction/Methodology

This paper presents the results from interviews 61 smallholder households that participated in the cocoa value chain development project sponsored by Lutheran World Relief (LWR) and Sumaqao, a in VRAEM region of Peru. Primary data was collected between July-September 2016 from 61 smallholder households—roughly 50% of those who directly received project-provided services. Nearly half of the interviews were administered in the southern part of the area included the project, near Pichari in the Cusco department and the other half from the northern part of the area, in the Ayacucho and Junin departments. Within each household four interviews were conducted. Multiple structured interviews with each household reduced the potential of bias and inaccuracies due to interviewee fatigue and allowed us to explore potential gender-based differences in cocoa participation and related benefits.

The first set of interviews included the female and male household heads together, presented in section A. A male and male enumerator together, with one asking questions and the other taking notes, interviewed the couple. Following the interview, the team discussed the answers and look for discrepancies to be addressed in the next set of interviews. If the household had a single head, the survey was conducted with the lone household head. It covered household demographics, livelihood strategies, agronomic practices, and asset ownership. The second set of interviews in Section B was conducted with the male and female household head separately on their productive activities and perceptions of their involvement in cocoa production and the intervention. A female enumerator interviewed the female household heads, and a male enumerator interviewed the male household heads. Questions included participation in cocoa production and other productive activities, involvement in the cooperative Ccatun Wayra and training activities from the intervention, involvement in household and production decisions, and access to assets. A total of 47 women and 55 men participated in this second round of surveys. Finally, female household heads were interviewed on her time spent in various activities and interest in cocoa production, included in Section C. This phase of interviews was with the female head of the family about her daily activities and her interest in cocoa production. The women were asked to recall their daily time use for the day before, including time spent in household activities, on the farm activities, and the cultivation of cocoa. Of the 61 households sampled, a total of 53 women were interviewed, as several households had no female household head. In one household, the female head was traveling and not available for the interview.

RESULTS

A. Household Joint Interview

Most of the participants were middle aged. The average age of the male household head was 48.4 years and 44.1 years for the female head. The participants ranged in age from 23 years to 79 years old (Table 1). The male household heads were more educated than the female household heads. Many adult women, in particular, had no education (18%), which is much greater than the number of men who did not have any education (2%) (Figure 1).

Table 1. Household demographics

Variable	Mean	Median	Min	Max
Age of male head (n=56)	48.4	47.5	26	79
Age of female head (n=57)	44.1	40	23	72
Household size (n=61)	4.3	4	1	9
Number of children under 18	1.4	1	0	4

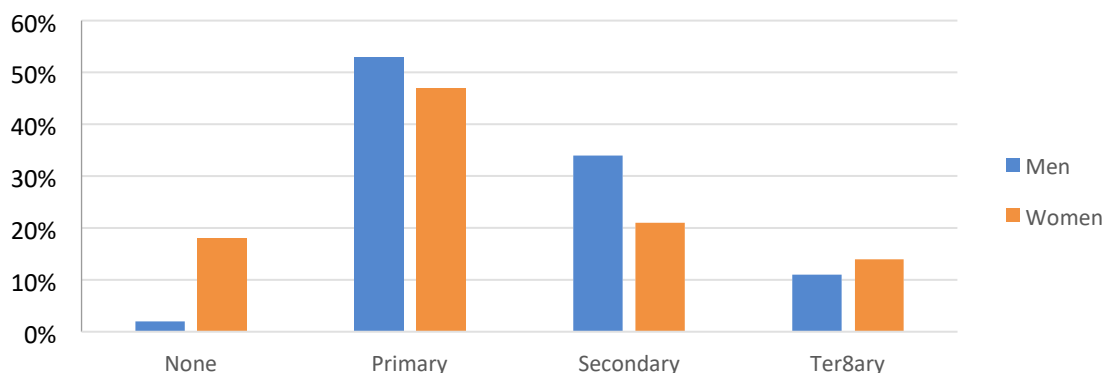


Figure 1. Education levels of household heads (percent of total by gender)

Household assets

The families that participated in the intervention were relatively poor when compared to the rest of the Peruvian population and lived in substandard housing. Half of the homes had dirt floors, nearly all (95%) had tin roofs and walls made of wood planks (83%). The few cement homes in the sample (30%) were a sign of wealth. In general, they had small farms. Total landholdings averaged 13.4 ha with a median of 7 ha. Much of this land was dedicated to cocoa production (6.3 ha on average) (Table 2). Even though many of the households had substandard housing, nearly all had invested in farming equipment to enhance their productive capacity. The failure of buyers to compensate them with higher prices for cocoa that had completed proper post-harvest procedures made the farmers reluctant to implement the post-harvest practices they had been taught (Table 3).

- *I still have not used the post-harvest techniques I was taught because I do not have the money to implement them.*

Table 2. Land holdings and use

Land holdings (ha)	Mean	Median	Min	Max.
Total	13.4	7.0	1.5	67
Cocoa	6.3	5.2	1.0	26

Table 3. Ownership and acquisition of farming tools, equipment, and infrastructure

Item	Ownership (% all households)	Form of acquisition (% households that own item)			
		Own funds	Credit	Donation	Shared
Motorized weeder	90.2%	80.0%	5.5%	10.9%	3.6%
Chainsaw	70.5%	81.4%	4.7%	11.6%	2.3%
Motorized sprayer	59.0%	72.2%	8.3%	13.9%	5.6%
Greenhouse	52.5%	87.5%	3.1%	9.4%	0%
Drying beds	36.1%	77.3%	0%	18.2%	4.6%
Cargo motorcycle	32.8%	70.0%	25.0%	0%	5.0%
Fermenting bins	32.8%	65.0%	5.0%	30.0%	0%
Pick-up	4.9%	66.7%	33.3%	0%	0%

Livelihood strategies

Cocoa was a critically important income source for the households; for nearly a third (32.8%) cocoa was the only income source. For those households that had additional sources of income, the most prevalent income source was from small businesses (32.8%), all of which were recently started and were mostly small general stores. The next most important income sources were having a cocoa intermediary business, which was a new income source, and coca production for 11.5% of households followed by farm labor and perennial crops, plantains and citrus, for 9.8% of households. Rather than diversifying their agricultural activities, the households planned to dedicate even more of their land to cocoa production. They had plans to increase the percentage of their landholdings dedicated to cocoa from 54% to 78%. The households expected to convert forest and fallow to cocoa plantations to (Figure 2).

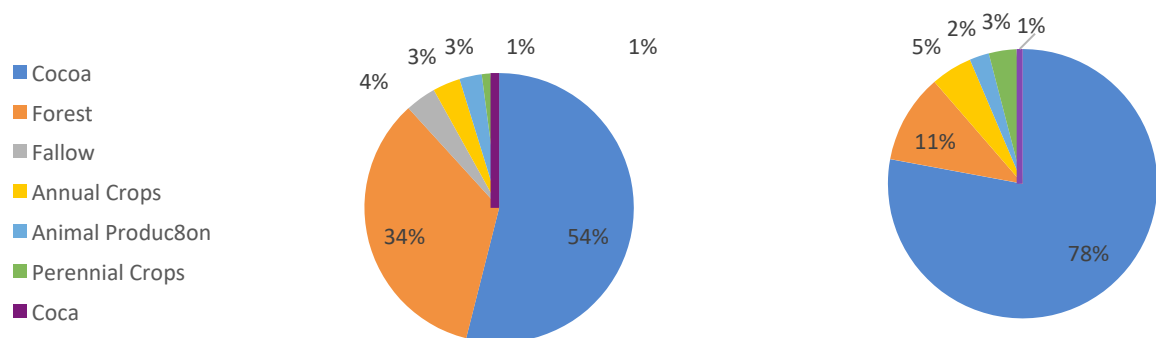


Figure 2. Percentage of total land dedicated to different land uses (left). Expected percentage of total land dedicated to different land uses in five years (right)

Household income

Cocoa played a very important role in household income. On average, cocoa made up 78% of household gross income while the median household had 91.6% of its gross income from cocoa production. Average gross household income was nearly 15,700 USD of which 10,550 USD was from cocoa production. This low-income demonstrated the limited financial resources available to these households. Per capita income was 3650 USD in 2016, which was a third of Peru's per capita income of 11,000 USD in 2016. Many farmers mentioned how cocoa was critical to household wellbeing and income. The farmers sold their cocoa at an average price of 2.70 USD/kg, 0.10 to 0.30 USD below world prices at the time of the survey.

- *Cocoa is the only crop that we have. It is profitable and is not difficult to care for.*
- *Cocoa supports our family's finances. Through the sale of cocoa, we can invest in our children's education and can afford to visit the doctor when we are sick.*
- *Cocoa is the principal income source for our family.... We have replaced coca production with cocoa.*

Cocoa production

Most of the cocoa land was dedicated to growing hybrid varieties particularly CCN-51, which is credited for being resistant to diseases and more productive but is not as flavorful as native cocoa varieties (Figure 3). However, the makeup of the cocoa plantations have been changing as most of the new production was from local hybrids, which are noted for being more productive than native varieties while still being flavorful. Much of this cocoa was recently planted within the last five or six years, as farmers returned to reclaim their land following over a decade of conflict that caused many to leave their farms. Before the conflict, much of the production was either native varieties or mixed between native varieties and CCN-51 (Table 4).

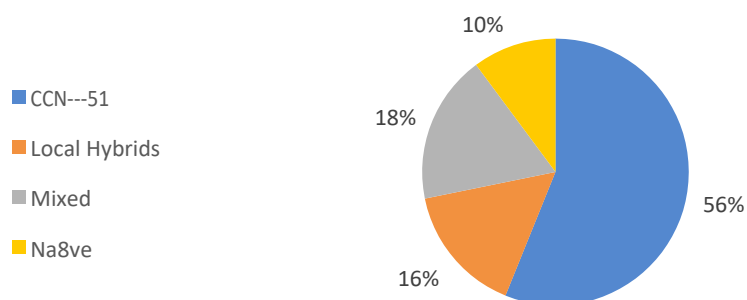


Figure 3. Percentage of total area of cocoa dedicated to each variety

Table 4. Characteristics of cocoa varieties

Variety	Mean Age (Years of trees)	Newly established (% area of variety)	In Production (% area of variety)	Abandoned (% area of variety)
CCN-51	6.5	13.5%	86.5%	0%
Local Hybrid	4.3	37.3%	62.7%	0%
Native	11.8	7.9%	21.9%	70.2%
Mixed	5.2	19.4%	80.6%	0%
Total	7.1	17.8%	75.2%	7.0%

Over 80% of the cocoa fields contained at least a few companion fruit and timber trees. The cocoa forests were mostly abandoned fields, with native cocoa varieties and many native, timber, and fruit trees. These cocoa forests made up 12.5% of total area in cocoa production (Table 5). The field designs, age of the trees, and varieties included in the fields affected production levels, which vary widely from under 300 kg/ha in the older abandoned fields to over 1000 kg/ha in the younger, more productive highly managed fields. Overall, the farmers that participated in the intervention were quite productive considering all the abandoned and newly established fields with average cocoa yields of 807.9 kg/ha. These production levels should only increase as the newly established fields mature and the abandoned fields are replaced.

Table 5. Type of cocoa production practice by variety

Variety	Forest like (% area of variety)	Intercropped (% area of variety)	Mostly Cocoa (% area of variety)	Monoculture (% area of variety)
CCN-51	6.6%	9.0%	61.4%	23.1%
Local Hybrid	6.9%	3.4%	66.5%	23.2%
Native	70.2%	0%	20.5%	9.3%
Mixed	11.2%	71.7%	14.2%	3.0%
Total	12.5%	8.1%	59.9%	19.5%

Interest in cocoa by future generations

Of the 49 households that have children between 12 and 18 years old, only 37.8% stated that at least one of their children had shown interest in cocoa production and taking over the farm. Many parents expressed a desire for their children to attend higher education institutions to become professionals and not continue farming, which they view as unpleasant and labor intensive. The interest in taking over the families' cocoa fields was equally divided between daughters and sons.

B. Individual Separate Interview

Gender differences in livelihood activities

A marked gendered difference existed in the activities undertaken by men and women. While all the men in the survey indicated that their primary activity was cocoa production, women stated that they were involved in a wider array of activities in addition to cocoa production, including domestic activities (e.g. child care, cooking, cleaning), running small businesses, and small animal production. There was a notable difference in a few activities that were exclusively in the female domain and others that were in the male domain. Not one man listed domestic activities among the top three most important activities he undertook. Likewise, not one woman worked as a day laborer, was employed as an intermediary, or was active in the production of annual crops (e.g. corn, sesame, and pineapples) (Figures 4, 5 and 6).

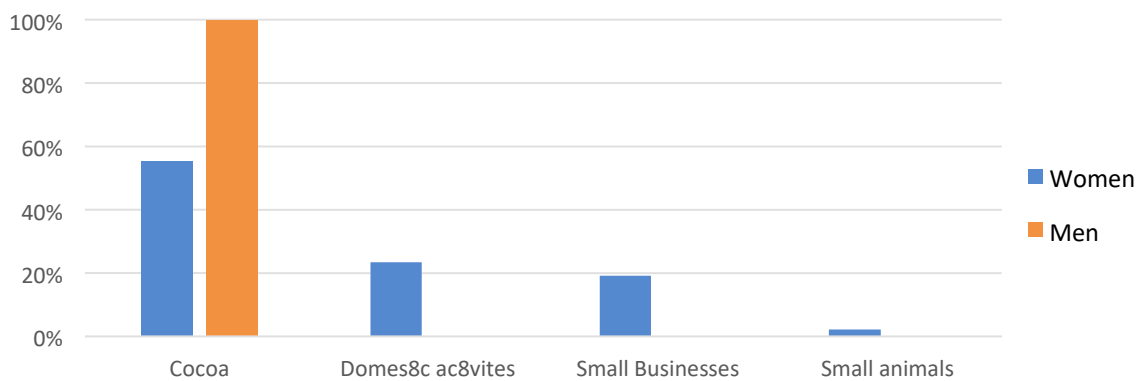


Figure 4. Primary activity as a percentage of respondents by gender

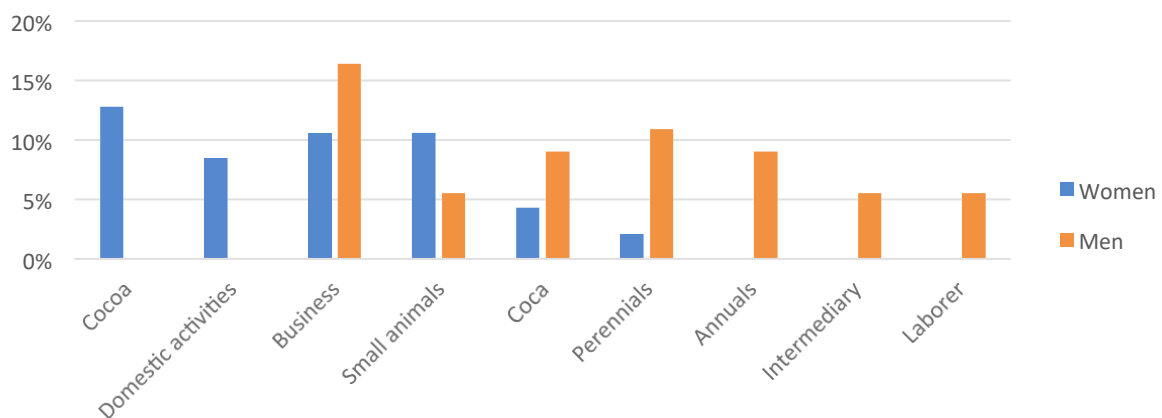


Figure 5. Second most important activity as a percentage of respondents by gender

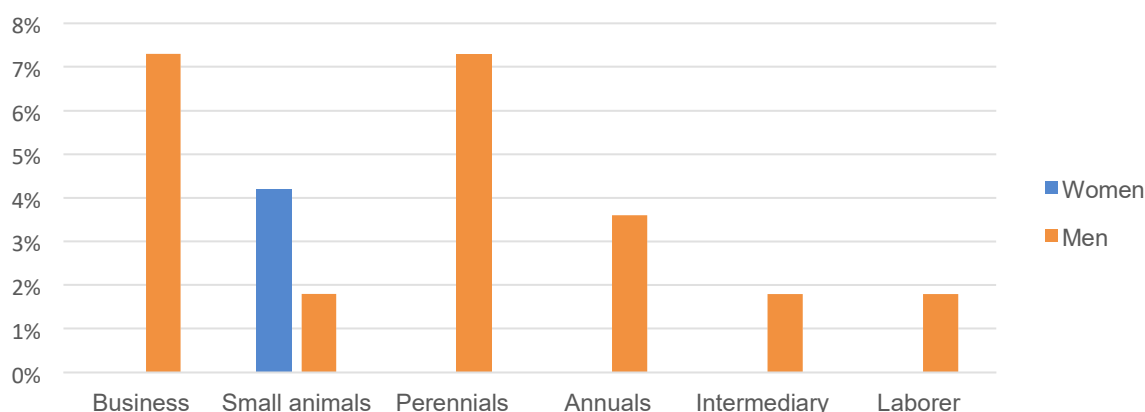


Figure 6. Third most important activity as a percentage of respondents by gender

Participation in the cocoa production by gender

There was a clear gender difference in the participation in the project supported cooperative, Ccatun Wayara, cocoa marketing, and cocoa training programs. While there was not a significant difference in the membership in the cooperative by gender, women were less informed about cooperative activities (Table 6). Women also felt like they were less informed about the marketing of the cocoa crop, particularly on the quantity the household sold and the buyers who purchased the cocoa from the household. However, both men and women were informed about prices the buyers were offering (Table 7).

Women were less informed about and participated in fewer trainings and technical assistance. A total of 57.5% of women had attended at least one training on cocoa production compared to 94.5% of the men who had attended at least one training. Similarly, 57.5% of women had received technical assistance in cocoa while 92.8% of men had received such assistance. On average women attended 1.8 trainings on cocoa production while men had attended 5.5 trainings in 2016. There was a similar difference in the number of trainings and technical assistance received by women and men on the production of others crops besides cocoa (Table 9).

Table 6. Gender differences in perceptions about and participation in the cooperative

	% of women	% of men	% of both genders
Member	42.6%	43.6%	43.1%
Important or very important	75.0%	87.5%	81.8%
Mostly informed of activities*	3.7%	23.1%	13.2%
Interested or very interested to join	14.8%	24.1%	19.3%

*Significantly different by gender at $p < 0.05$

Table 7. Percentage of women and men who feel always or mostly informed about trainings, technical assistance and cocoa sales

	% of women	% of men	% of both genders
Buyers**	55.3%	81.8%	69.6%
Market prices	55.3%	59.3%	57.4%
Quantity sold*	83.0%	96.4%	90.2%
Trainings**	44.8%	87.3%	68.6%
Technician visits*	57.1%	80.0%	69.6%

**Significantly different by gender at $p < 0.01$; *Significantly different by gender at $p < 0.05$

Table 8. Average number of times that women and men participated in trainings in 2016

	Women	Men	Both genders
Trainings in cocoa**	1.8	5.5	3.8
Trainings in other crops+	0.4	1.1	0.8
Technical assistance for cocoa**	1.8	5.0	3.5
Technical assistance for other crops+	0.3	0.7	0.5

**Significantly different by gender at $p < 0.01$

+Significantly different between cocoa and other crops at $p < 0.1$

Gender differences in decision-making

Gender differences were also evident in the role men and women had in production and household decisions (Table 10). In particular, men had more say in where to sell agricultural products and the purchase and sale of large farm equipment, land and vehicles (high value goods). However, in the majority of households these decisions were shared. The use of income is also a shared decision. Interestingly, men and women share the same perceptions about who makes the decisions in household. The only difference in these perceptions was on who decides where to sell cocoa. Cultural and social changes have allowed women to have a stronger role in decision-making. Several women (35.4%) stated that they had more influence in production decisions than they did three years ago. Still, 18.8% of women stated that they had less influence on these decisions than they did three years ago.

Table 9. Men and women’s influence in major household and production decisions

Decision	% of respondents who had little or no influence in the decision		% of respondents who say that the decision was made equally between both genders	
	Women	Men	Women	Men
Where to sell cocoa	25.5	3.6**	57.5	74.6+
Where to sell other crops	23.4	3.6**	59.6	74.6
Spend earnings from cocoa	2.1	1.8	83.0	80.0
Spend earnings from other crops	2.1	1.8	83.0	81.8
Spending off farm income	0	0	59.3	78.4
Accessing credit	2.1	7.3	80.9	72.7
Buying cocoa plants	17.0	7.3	70.2	67.3
Buying other plants	17.0	7.3	70.2	67.3
Buying and selling land	12.8	3.6+	74.5	76.4
Buying and selling farm equipment	27.7	1.8**	59.6	65.5
Buying and selling vehicles	25.5	1.8**	61.7	63.6
Home improvements	4.3	7.3	83.0	74.6

**Significantly different by gender at $p < 0.01$; +Significantly different by gender at $p < 0.1$

C. Women’s Time Use Interviews

Women’s time use in daily activities

Many women were also involved in productive activities, with 82 percent of women involved in the caring for animals, 62 percent working in cocoa production, and 33 percent in off farm work. Women in VRAEM spent 39% of their time (5.5 hours) on income generating activities and 61% (8.7 hours) of their time on domestic activities. The average woman had a working day of 971 minutes (16.2 hours from 5 am to 10pm). This time was split between childcare 237 minutes (3.9 hours), off farm work 157 minutes (2.6 hours), cooking 129 minutes (2.1 hours), and cocoa production 127 minutes (2.1 hours). Less than an hour was allocated to free time (Figure 10).

Interest in cocoa production

Nearly all the women (85%) were interested or very interested in cocoa production. Women reported several reasons for their interest in cocoa production: 60% stated it was the family's primary source of income, 11% enjoyed working in the cocoa, and 7% said it was better than working in coca. Women who reported a lower level of interest in cocoa gave the following reasons for their lack of interest: old age (43%) and lack of time due to the need to care for young children (14%). Women who were not interested in cocoa production stated they were more interested in running a small business and raising small animals.

Participation in cocoa production

Most of the women (51%) reported that they spent a little more time in cocoa production, while 16% stated that they spent a lot more time in cocoa production since the LWR-Sumaqao project began. They explained that they had decided to dedicate more time to cocoa production because of enhanced productivity they had witness from applying the agronomic practices they learned from Minku Tarpuy. Women were heavily involved in pruning, harvesting, post-harvest activities, and weeding. Women participated mostly in harvesting cocoa (91 percent), pruning (60 percent), post harvest activities (drying and fermenting) (42 percent), and weeding (27 percent). Activities such as the application of chemicals, planting, and marketing had lower levels of participation by women (Figure 7). The women indicated they were more active in pruning, harvesting, post-harvest activities, and weeding than they were before the intervention. Participation of women in planting, application of chemicals and the marketing of cocoa remained the same or was lower during this time.

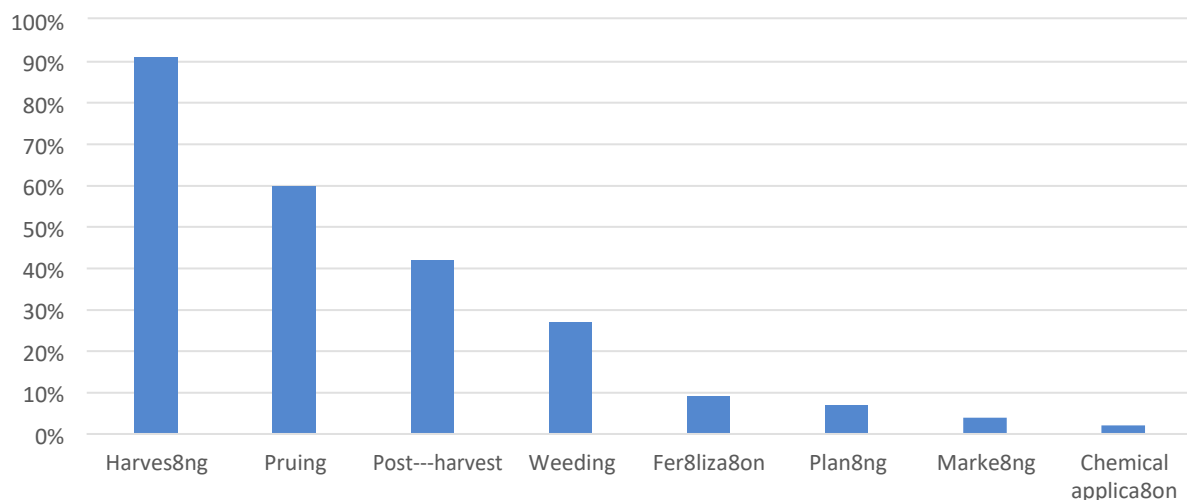


Figure 7. Percentage of women participating in various cocoa production activities

Barriers to participation in the cocoa production

The women indicated that they faced several barriers to increasing their participation in cocoa production: lack of knowledge, time constraints due to domestic and off farm work, old age, and land shortages. Only 13% of women indicated that they did not face any barrier to increasing their time dedicated to cocoa production (Figure 13).

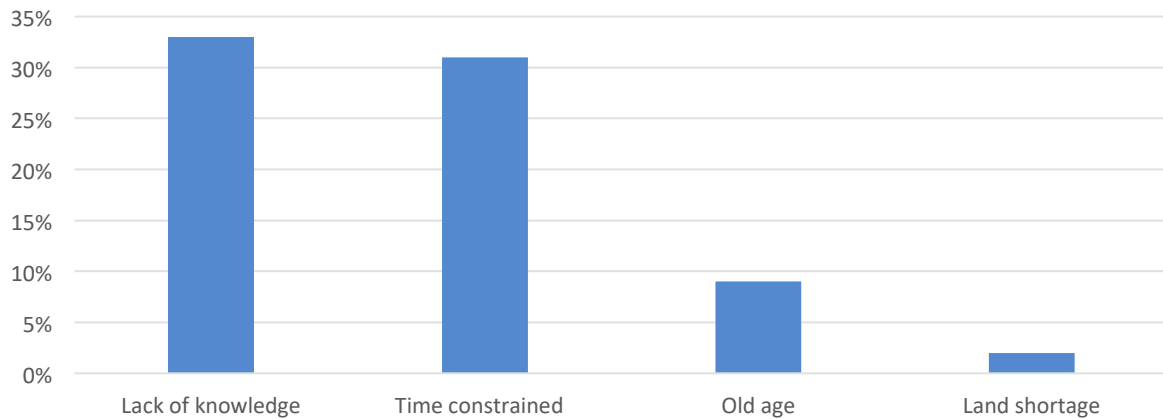


Figure 13. Perceived barriers to participation in cocoa production

Several women indicated they would have liked to have had attended more trainings and to have been more active in cocoa production; however, their household chores limited their ability to participate. Many of the women that had received technical training and assistance would like to learn more.

- *I have missed many training because I do not have the free time, as I must take care of my children.*
- *I don't understand how to raise cocoa... my husband knows more.*

Project's impacts on household time use

Most (50%) of women felt there was not enough time in the day to complete all the necessary tasks. A third of women agreed that the intervention had increased their workload, as they had to attend more trainings and complete additional activities such as pruning to improve their cocoa. However, 38% had mixed perceptions of the intervention's impact on their workload. The women reported the activities most impacted by their increased involvement in cocoa production were cleaning the house (22%) and washing clothes (29%).

- *I can't change places with my husband, but sometimes he helps me [in the house].*
- *I can't visit my cocoa farm because I have to take care of the house.*

D. Conclusion

Our assessment provides some encouraging insights into the potential of cocoa value chain development to generate positive changes for smallholders in VRAEM. The households that participated in the LWR-Sumaqao intervention showed a high level of interest in cocoa production. In general, they have invested in the intensification of existing cocoa production or in some cases, the establishment of new cocoa plantations. The study suggests that the LWR-Sumaqao interventions played an important role in brining about the intensification of cocoa production. It has allowed them to have a steady income and invest in better housing, pay for their children's education, and invest in other productive activities to diversify their income. Most households had limited access to other development interventions in the region, and relations with other cocoa buyers did not involve the provision of technical assistance or other services beyond the buying and selling of cocoa. A relatively favorable marketing context (e.g. relatively attractive and stable prices and existence of cocoa buyers) provided a favorable environment for investment in cocoa production.

Because of cocoa's importance, the intervention undertaken by LWR and Sumaqao in partnership with Miku Tarpuy was a strategic first step for economic and social development. Next steps include consolidating and enhancing future interventions to bring their efforts to

scale by coordinating efforts with other institutions and agencies involved in promoting cocoa production, strengthening the relationship between Sumaqao and the farmers in an effort to ensure a steady supply of high quality cocoa and access more lucrative markets, working to ensure women are fully included and empowered, and moving beyond the promotion of only cocoa to include other economic activities that are important to finances of smallholder households in VRAEM.

Traditional gender roles have limited women's ability to participate in cocoa production. Women are expected to complete all domestic activities (childcare, cleaning, cooking). Thus, they had limited time to work in their family's cocoa plots and participate in trainings and receive technical assistance. Furthermore, women had less access to important information on meetings for technical trainings, cooperative activities, and marketing information and many times were left out of important production and marketing decisions. There are opportunities for Minku Tarpuy to reach more women, which in addition to promoting women's empowerment would also enhance cocoa production, as many women are active in working on the cocoa plots. Providing childcare, establishing women's groups, making a special effort to invite women to events, using alternative forms to share information such as through text messaging and employing women technicians or provide special training to women farmers to teach her neighbors would help lower the barriers that women face.

The efforts to enhance cocoa production have had and will likely continue to have important impacts on household income and wellbeing. Now, many households are heavily dependent on cocoa as one of their few or only income source. Thus, these households are vulnerable to shocks in the cocoa value chain (price, disease, climate). These households will need to diversify their income sources in order to be more resilient and have additional income to lift them out of poverty. Several households have become involved in other economic activities, including owning stores or greenhouses, raising small animals such as pigs and chickens, and planting other valuable crops, particularly plantains, citrus, and other fruit trees. A livelihoods approach that includes trainings in small business development, small animal care, and the production of other crops would diversify and enhance household income while providing additional opportunities for women, who are particularly involved in running small businesses and raising small animals.