



Assessing Women's Empowerment
in climate smart agriculture: Sustainable
Landscapes in Eastern Madagascar

September 2022



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This study was conceived, designed, and implemented by Mr. Rado Rambakoarison (SLEM project socio-organizational & gender manager), Ms. Hariniaina Rameson (socio-organizational manager, CAZ Landscape), and Ms. Kame Westerman (CI Director of Gender & Safeguards). September 2022.

Executive Summary

Conservation International (CI) conducted this study as part of the Sustainable Landscapes in Eastern Madagascar (SLEM) project, an initiative funded by the Green Climate Fund (GCF) and implemented by CI and partners. The objective of this study was to measure the project's influence on women's empowerment in sustainable agriculture, an integral part of the project which focuses on supporting smallholder households to improve climate-resilient agricultural production. At the time of the study, the project was three years into a five-year long project and the results of the study are meant to inform adaptive management in the latter part of the project. From its beginning, the project adopted a gender-responsive approach and developed strategies to encourage full and gender equitable participation and benefit, such as encouraging women to join producer groups and benefit from targeted training, technical support, and subsidies for agricultural inputs.

The study applied principles of the Women's Empowerment in Agriculture Index (WEAI) (Alkire et al., 2013) five domains of power (1. Level of participation in agricultural decision making at the household level, 2. Level of control over productive resources, 3. Level of control over use of income, 4. Level of leadership in the community, and 5. Women's time allocation). The study used a longitudinal approach to assess and compare the level of reported empowerment of women participants before the project started (pre-project situation) and during project implementation (current situation). A baseline assessment was not conducted before the project began and therefore this study asked participants to recall and compare the pre-project situation to the current situation. Enumerators collected data through individual interviews with a sample of 94 women (3% of all women participants in the project) from both female and male-headed households in February-March 2021. Results show positive changes in all five domains of empowerment, including:

- Women's decision making in agricultural production showed significant increases (from very low/low to medium), however none of the respondents considered themselves to have high levels of decision making.
- Women reported a notable shift in their level of control over productive resources, describing more equal control within the household over crops, tools, and livestock.
- There is a clear positive change in women's control over income, showing high levels of control for all income sources except large livestock (although even that increased during the project).
- Engagement and active participation in community groups increased, with more women reporting being active members overall, and more reporting being members of multiple groups.
- Women's reported comfort in public speaking saw only a limited increase, and only in those aged over 26 years. Importantly, almost half of respondents reported still lacking in confidence when it comes to speaking in front of a mixed-gender audience.
- The project's impact on women's time allocation is mixed, with more than half reporting increased time spent on social and community activities and almost half reporting increased free and leisure time. At the same time, a third of respondents reporting reduced time spent on care giving activities.
- Respondents identified a host of changes they have observed due to the project, including increased revenue, food production, technical knowledge, comfort in public speaking, and gaining more respect from their family and community.

This information is helpful to more fully understand the impacts that the project is having at the individual level, capturing important results that are not observed in quarterly and annual monitoring. The study team identified several lessons, including the fact that the direct participation of women in a sustainable agriculture project has strong potential to empower them if done in a targeted and culturally appropriate way. The project's targeting of women's associations seems to be a successful approach to engaging and empowering women in sustainable agriculture. It is in the interest of the project to continue in this direction, although including women in mixed groups is also an approach that should not be overlooked. The results also highlight areas where the project needs to focus more, namely efforts to increase women's self-confidence and agency (public speaking, participation in meetings, etc.) and strategies to encourage women to fully apply improved agricultural techniques (considering their time poverty, lack of capital / labor force, etc.).

Background and objectives

This report shares the results of a study conducted by Conservation International between February and March 2021 in the CAZ (Corridor Forestier Ankeniheny-Zahamena) and COFAV (Corridor Forestier Ambositra-Vondrozo) landscapes of eastern Madagascar among 94 women participants of a project supported by the Green Climate Fund (GCF). The study aimed to measure perceived change in empowerment levels of women participants as a result of project interventions such as technical training, coaching, and provision of agricultural inputs. The results help assess the effectiveness of the project's approaches and strategies to improve the gender sensitivity of activities and increase the impact of the project on reducing gender inequalities and increasing women's empowerment. These data were collected three years into a five-year project, allowing for direct influence into adaptive project management.

The SLEM Project

Sustainable Landscapes in Eastern Madagascar (SLEM) is a five-year, \$18.5 million, GCF-funded climate change adaptation and mitigation project implemented by Conservation International and its partners since 2018. Its objective is to increase the resilience of 23,800 smallholder farmer households to climate change and reduce carbon emissions by implementing climate-smart agriculture and more sustainable forest management. The CAZ (Corridor Forestier Ankeniheny-Zahamena) and COFAV (Corridor Forestier Ambositra-Vondrozo) landscapes are mainly targeted by this project, see map for location.

The project's activities are grouped under four components. These include (i) climate change adaptation and (ii) mitigation, (iii) capacity building, and (iv) communication. This case study focused on the climate change adaptation activities that aim to strengthen adaptive capacity and reduce exposure to climate risk for smallholder farmers. The component includes activities that target households for trainings on Climate-Smart Agriculture techniques and provision of agricultural inputs (such as seeds and tools). The data cover the 2019-2020 agricultural season, during which 7,452 households, represented by 2,981 women and 4,471 men, received training and technical supervision, seeds and seedlings as well as small agricultural tools.

Agriculture is central to the rural economy in these landscapes and the main source of livelihood for the local population. Small-scale agriculture is done both for family subsistence and for income via cash crops. Subsistence agriculture includes rice, corn, peanuts, cassava, potatoes, and beans while cash crops include coffee, banana, cloves, ginger, and litchis. Surplus subsistence crops are also sold, notably rice, but also



corn or peanut. Small livestock includes chicken, rabbit, duck, and geese, while zebu (cattle) and pig are the primary large livestock. Isolation due to remoteness has a major impact on the rural economy and agricultural activities. In general, the lack of road infrastructure strongly limits economic development and therefore the population focuses heavily on subsistence agriculture (Harvey et al., 2014).

Gender in small-scale agriculture in Madagascar

Gender inequality, fueled by deeply rooted socio-cultural norms and beliefs, persists in Madagascar despite the efforts of the government and civil society organizations to mitigate them (AFDB, 2015; Kellum et al., 2020). These inequalities remain accentuated in agriculture, a sector that employs 74.9% of the working population (INSTAT, 2020), and where family farming is the most prevalent form of production (Harvey et al., 2014). Gender norms are apparent in the traditional division of agricultural labor, assigning to men most of the decision-making powers (AFDB, 2015). They are also reflected in various forms of discrimination against women, especially regarding access to and control over productive resources, including land (AFDB, 2015; Kellum et al., 2020). Other consequences of these gender negative stereotypes are factors that may obstruct women's participation in agricultural activities, including time poverty (Hyde et al., 2020), low literacy (CI & CONFORME, 2014), limited access to information (Kellum et al., 2020), and lack of self-confidence and discomfort in participating in community meetings (Mahmud & Rabary, 2019).

All too often, small scale farming is regarded as ‘gender-neutral’ with a family unit making combined decisions, being affected by climate change in the same way, and engaging in projects as a team, but this is rarely the case (Beuchelt, 2016). Roles and responsibilities within small scale farming families are usually highly gendered, as Table 1 demonstrates. This table reflects the traditional division of labor in the project communities, which is strongly influenced by the social norms inherent in Malagasy society and which remain strong in rural areas.

Table 1: Common agricultural gendered tasks or roles in Madagascar, as observed by project team

	Men	Women	Both
Rice	Preparing rice fields (digging, plowing, irrigation), threshing	Transplanting, weeding	Harvesting, transport of plants to be threshed
Cultivation of crops	Cash crops	Vegetables & fruit	Basic food crops (rice, cassava, etc.)
Animal husbandry	Larger livestock (zebu, pigs)	Smaller livestock (poultry, rabbit)	
Sales/marketing	Negotiate with buyers of crops (both subsistence & cash) when in larger quantities. Selling of large livestock.	Marketing/selling of food and some cash crops when in small quantity and sold in local public marketplace.	Selling of small livestock.

There are also stark differences between male-headed versus female-headed households across Madagascar, which follow many global trends of female-headed households relying more heavily on

small-scale farming, farming smaller plots of land, resulting in lower productivity and income (e.g., Gebre et al. 2021, Auma et al. 2010). Globally, research shows that women farmers, on average, receive only about 5% of agricultural inputs (FAO 2012).

Table 2: Comparative data on agricultural MHH and FHH

	Rural male-headed household	Rural female-headed household
Percent across Madagascar (FAO 2011)	79%	21%
Focus on small scale farming (INSTAT 2010)	70%	84%
Farm size (INSTAT 2010)	1.4 ha	1.0 ha
Use of monoculture (INSTAT 2010)	10%	20%
Percent of households that cultivate more than 5 different crops (INSTAT 2010)	27%	15%
Farm income (INSTAT 2010)	1,000,000 Ariary/year	557,000 Ariary/year

Agricultural and climate risk studies in the two project landscapes show that, in general, men and women have similar perceptions of the impacts of climate change, but they differ in some of the strategies used to cope with the risks (Rao et al., unpublished, CI & CONFORME, 2014). While food security is perceived to be a major issue by both men and women smallholder farmers, women tend to adopt coping strategies focused on changes at the household level (such as reducing food consumption and seeking food from relatives and neighbors) while men are more likely to seek off-farm income. While these studies provide useful background and confirm gender differences in agricultural roles and the impacts of climate change, they also indicate the need for detailed consideration of gender as part of agricultural project design and implementation.

SLEM Gender Action Plan

The SLEM project is committed to ensuring that men and women, as well as vulnerable groups among them, can participate equitably and derive equal benefits from its activities. Promoting the effective participation of women is one of the major challenges of this project, which is being implemented in a context where gender inequalities remain significant. To this end, CI developed a gender action plan during proposal development (updated in 2019) for the project which includes measures and actions to be implemented to close gender gaps in small scale agriculture and support women’s participation in, and benefit from, the project. A snapshot of the SLEM Gender Action Plan (GAP) approaches/activities, and their status as of the 2021 annual report¹, can be found in Table 3.

Table 3: Gender Action Plan commitments and status

Approach/activity identified in the GAP	Status as of 2021 annual report
Targets/indicators: Set ambitious targets (50%) for women’s participation and benefit in project activities and supplies.	44% of the 10,598 individuals trained on climate-resilient agricultural techniques are women, trained by both project technicians and lead farmers.

¹ This is the most current report, cleared in June 2022

	35% of the 4,875 individuals receiving agricultural inputs are women.
Project staffing: Include a full-time gender & safeguards specialist on the project team to monitor implementation of the gender plan. Proactively provide employment to women in other positions, such as tree nursery workers.	A full-time gender & safeguards manager is a critical member of the project team since 2018. Women make up 17% and 21% of the nursery workforce in CAZ and COFAV respectively.
Farmer trainers: Recruit women lead farmers ² whose responsibility it is to provide direct training, extension services, and technical supervision to ~30 households each.	Of the 290 lead farmers, 40% are women
Training and awareness raising with project partners, stakeholders, staff, and community members: The project has an annual target of 7,000 individuals trained/sensitized on gender issues which included basic awareness raising at community meetings and technical trainings for farmer leaders about how to support women's participation.	2021: 7,839 (41% women) 2020: 5,544 (62% women) 2019: 7,452 (40% women)
Women's associations: Targeting project activities and information to women's associations as a key beneficiary group, recognizing that the traditional farmers groups are predominantly male dominated. Annual target is 36 women's associations engaged.	To date, 30 women's associations have received support from the project, including grants and technical support for agricultural practices.
Encourage increased participation of women in local forest management structures (VOIs): These structures are traditionally male dominated; baseline was 10% and the project's target was set at 25% women.	Approximately 30% ³ of VOI association members are women. An improvement in the involvement of women in VOI leadership positions is noted, for example with more women serving as VOI presidents and patrollers.
Participatory planning for agriculture activities: Ensuring that engagements with communities, such as participatory planning sessions, are conducted in a gender-sensitive manner. This includes selecting meeting locations that are close to the community, days and time slots that are convenient to women, providing childcare during meetings, and using inclusive facilitation techniques that encourage women to speak out and share their views and priorities. In some cases, separate consultations are done with women	100% of community participatory planning sessions are conducted in a gender-sensitive manner. Women's participation in these planning sessions is estimated to be more than 30% on average, according to attendance sheets.

² Lead farmers are paid local extension agents who provide training, sensitization, coaching and technical advice to farmers. A lead farmer usually supervises 30 farmers. They also set up and maintain agricultural demonstration sites.

³ Figure includes both beneficiary VOIs and those that are not.

when they have difficulty expressing themselves in mixed groups.	
Tools/capacity building: Designing supporting information for project staff, farmer trainers, and other project stakeholders to advance gender awareness and application of gender-responsive approaches in project activities.	Created a practical guide on “taking gender dimensions into account” and trained lead farmers and farmer group leaders on this guide to help their engagement practices.
Tailoring communications: Design training modules tailored to the lower level of women’s education. The modules avoid theoretical concepts, use images and illustrations, ensure images don’t reinforce stereotypes, and use women in case study examples.	100% of training modules developed in the project are gender sensitive.
Inclusion of gender topic in key project-produced documents: This includes incorporating gender sensitivity into climate responsive planning guides and regional and local planning documents.	All relevant project documents have included gender sensitivity, for example inclusive language, gender-neutral images (or images of both men and women), requesting disaggregated data in subproject grant proposals, etc.

Purposes of the empowerment study

While annual and quarterly reporting provide important information about how activities meet quantitative targets, the ability to report qualitative impact-focused information is limited. These indicators do not adequately capture the impacts or outcomes of these efforts. And while the project also conducts an impact evaluation called Learning-Oriented Real-Time Impact Assessment⁴ (LORTA) which is designed to measure (against control / non-intervention areas) how the project leads to lower greenhouse gas (GHG) emissions and enhanced resilience to climate change, this methodology focuses on climate resilience of households and does not adequately capture changes in gender norms. Recognizing this shortcoming, there are efforts to update the methodology and questionnaire to include an emphasis on gender sensitivity.

To address this gap and collect targeted information about the impacts of the project’s gender goals, the project conducted in-person interviews to assess perceived empowerment. This case study aims to take project monitoring a step beyond, to understanding how those output results have impacted women’s lives and livelihoods. Specifically, the study aims to understand how women’s participation in the project has impacted their perceived level of empowerment as well as gender relations at the household level. This general objective is broken down into two sub-purposes:

- Assess the effectiveness of the approaches and strategies in the gender action plan to support women’s participation in the project and to increase their sense of empowerment.
- Synthesize insights to inform this project’s implementation and other, similar projects’ design.

⁴ <https://ieugreenclimate.fund/evaluation/lorta>

While gender equality and women’s empowerment are important outcomes on their own, the fact that women play such important roles at different nodes of the agricultural value chain (as described in Table 1) underscores how critical it is to effectively engage them in efforts to build agricultural resilience to climate change. Additionally, the results of this study identify areas of strength and weakness, providing indications of where the project may want to focus additional energy. It is also instructive for other similar conservation projects within Conservation International and beyond.

Methodology

Measuring empowerment

Measuring empowerment is not an easy task given the complexity of the concept. This study’s methodology is based on components of the Women’s Empowerment in Agriculture Index⁵ (WEAI), one of the most comprehensive and widely used methodologies for measuring women’s empowerment in the agricultural sector. It should be noted, however, that the study does not strictly follow the WEAI protocol and does not attempt to calculate an empowerment index.

The WEAI as a reference framework

The WEAI methodology operationalizes Kabeer’s definition of empowerment as *“the process by which women develop the capacity to make strategic choices in their lives, particularly in contexts where this capacity had been denied”* (Kabeer, 2002). The WEAI methodology measures women’s empowerment through five “domains of empowerment”:

- **Production:** Sole or joint decision-making over food and cash-crop farming, livestock, and fisheries as well as autonomy in agricultural production
- **Resources:** Ownership, access to, and decision-making power over productive resources such as land, livestock, agricultural equipment, consumer durables, and credit
- **Income:** Sole or joint control over income and expenditures
- **Leadership:** Membership in economic or social groups and comfort in speaking in public
- **Time:** Allocation of time to productive and domestic tasks as well as free and leisure time.

Indicators of empowerment

Based on the five WEAI components of empowerment, the project team derived the following indicators:

- **Level of participation in decisions about agricultural production at the household level,** measuring the extent to which women are involved in decision-making around agricultural activities. For example, land use/crop choice and what to do with harvests.
- **Level of control over productive resources,** measuring women level of decision-making power about productive resources. For example, control over animal management decisions.
- **Level of control of use of income,** determining the level of inclusion and autonomy of women in decisions regarding the use of different household incomes.
- **Level of leadership in the community,** capturing women’s membership and active participation within community structures as well as level of ease in public speaking within these groups.

⁵ Given funding and time constraints, the study uses a slightly modified A-WEAI methodology (i.e., did not ask about access to credit as this was not a component of the project interventions). <https://www.ifpri.org/project/weai>

- **Women’s time allocation**, measuring changes in allocation of time between domestic, productive and leisure or free time.

Longitudinal approach

The study adopts a longitudinal perspective, comparing respondents’ perceived situation for two points in time: (a) before their participation in the project and (b) the current situation. The data for the two time periods were collected at the same time, meaning that the past situation was captured retrospectively by asking respondents to recall the situation.

Sampling

In-person interviews were conducted with 94 women project participants from both male headed and female-headed households (70 from COFAV and 24 from CAZ). Respondents were randomly selected among the 2,981 women that benefited from technical trainings, coaching, and inputs during the 2019-2020 agricultural season. Women respondents were interviewed alone (i.e., spouses were not present in male-headed households). The following equation was used for the sample size calculation:

$$n = \frac{t^2 \times P(1 - P) \times N}{t^2 \times P(1 - P) \times (N - 1) \times y^2} = \frac{1.96^2 \times 0.50(1 - 0.5) \times 2,981}{1,96^2 \times 0.50(1 - 0.5) + (2,981 - 1) \times 0,1^2} = 93,07$$

- “N” the population size; 2,981 women participants.
- “P” as standard deviation (default value of 0.5 applied here).
- “t” the confidence level (1.96 is the Z-Score corresponding to 95% of confidence level).
- “y” the margin of error, fixed at 10%.

Data Collection

Over the course of February and March 2021, the 12-member team (3 women/9 men) visited 30 communities to conduct interviews. Before collecting information, respondents were informed of the study’s purpose, use of data, and clarified that their involvement was entirely voluntary. The interviews were conducted, and information recorded, in Malagasy.

The enumerators used a questionnaire consisting of 30 multiple-choice questions organized into five categories, each corresponding to a domain of empowerment (see Annex 1). Each multiple-choice question was designed to capture one aspect of its domain. To allow longitudinal analysis, respondents were asked to provide one response describing the pre-project situation and another describing the current situation. Depending on the question, respondents chose responses on a nominal or ordinal scale.

In addition, two additional questions were designed to gather corresponding qualitative information, including constraints limiting their participation in the project, changes they see because of their participation, and suggestions for improving the implementation of the project.

Data analysis

The project team manually transcribed data into an Excel worksheet. The worksheet was then cleaned and checked for missing values and outliers. Statistical calculations, including frequencies, percentages,

means, standard deviation and variance, were performed on the spreadsheet. Qualitative data collected through the open-ended questions underwent a special coding and categorization process, which led to a frequency analysis of the key words and phrases.

Limitations

We note that recall bias is a potential constraint with the methodology, as it requires participants to correctly remember the pre-project scenario, approximately 12 months before, and be able to relate it to the current situation. One’s perception and memory can easily be altered by other factors. Influencing factors, such as the COVID-19 pandemic, likely play some role. The study’s use of comparative close-ended responses may reduce some of the bias.

It should also be noted that the enumerators were staff of the project, and well known to participants. This association with the project may influence some participants’ responses, either to be more positive (to ‘say the right thing’) or they may be more open and honest because of the familiarity.

Finally, the influence of the COVID-19 pandemic on project sites and among participants cannot be understated. The pandemic has increased women’s work burden due to school closures and care of sick household members, increased gender-based violence, and significantly disrupted economies (among many other influences) (FAO 2020), all of which likely impact the domains of empowerment that this study seeks to measure.

Results

Demographic data of the respondents reveal the diversity of women engaged in the project. Of the 94 women interviewed:

- 45 are married (48%), 29 are separated or widowed (31%) and 20 are single (21%).
- The majority (65%) are aged between 26-45, with 30% aged 46-65, and only 5% under 25.
- 36% consider themselves as head of their own household, 48% as spouses (with spouse being head of household), while 16% reported to be simply a member of the household to which they belong.
- 35% are members of women’s associations while 65% belong to mixed-gender groups including local forest management structures (18%) and producers’ organization (47%).

Table 4: Respondents’ characteristics: age groups and matrimonial status.

Age group	Married		Separated or widowed		Single		Total	
	number	%	number	%	number	%	number	%
18-25	4	4%	0	0%	1	1%	5	5%
26-35	18	19%	7	7%	13	14%	38	4%
36-45	9	10%	9	10%	5	5%	23	25%
46-55	5	5%	10	11%	1	1%	16	17%
56-65	9	10%	3	3%	0	0%	12	13%
Total	45	48%	29	31%	20	21%	94	100%

Domain 1: Level of participation in decisions about agricultural production

Answers to six closed-response questions are analyzed in this section in order to measure this domain of empowerment. These questions asked about women’s level of participation in decision-making regarding the following:

1. **Agricultural land use:** influence in choice of land use and development.
2. **Choice of crops:** choice of crops to grow, what varieties to use, etc.
3. **Choice of agricultural techniques:** which techniques to apply to agricultural crops.
4. **Use of food crop products:** use and sale of food crop products (self-consumption, sale, etc.).
5. **Use of cash crops products:** use and sale of cash crop products (self-consumption, sale, etc.).
6. **Agricultural product sale decisions:** if selling, how much to sell? At what price? When and where to sell?

Participants were invited to provide their answer by selecting one among the following provided options:

1. **Very low**, meaning the respondent is never consulted and has no input on the decision.
2. **Low**, meaning that the respondent may be consulted sometimes but rarely.
3. **Medium**, meaning that respondent is often consulted, and her opinions may be considered or not by men (husband or the men inside the HH) depending on the situation.
4. **High**, meaning that the respondent is systematically consulted and or can decide by herself.

Table 5 below presents the frequency (in percentage) of each response category for the six questions.

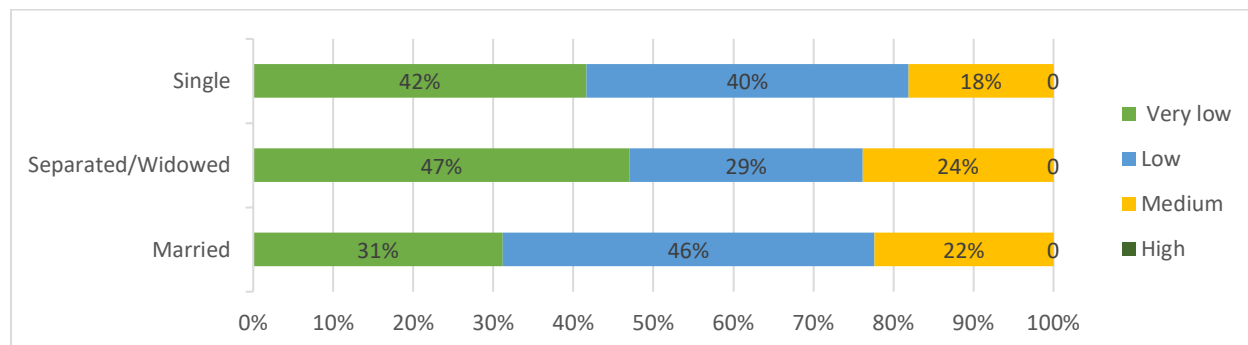
Table 5: Level of participation in decisions about agricultural production

Question: How do you estimate your level of participation in decision-making regarding _____?	Pre-project situation (Frequency per category of response, in %)				Current situation (Frequency per category of response, in %)			
	Very low	Low	Medium	High	Very low	Low	Medium	High
Q1. Land use	33%	36%	31%	0%	2%	29%	69%	0%
Q2. Crops choices	26%	53%	21%	0%	1%	31%	68%	0%
Q3. Ag techniques	35%	47%	18%	0%	4%	24%	71%	0%
Q4. Use of “food crops” products decisions	31%	50%	19%	0%	5%	29%	66%	0%
Q5. Use of “cash crops” product decisions	36%	48%	16%	0%	6%	29%	65%	0%
Q6. Product sale	37%	39%	23%	0%	3%	32%	65%	0%
Mean	33%	46%	21%	0%	4%	29%	67%	0%

For answers describing the pre-project situation, results reveal a low level of influence in decision-making across all six types of decisions with nobody reporting high. Most answers fall into the “very low” (33%) and “low” (46%) category response. Decision-making regarding land use appears to be the most evenly split with 1/3 of women reporting medium participation. Influence in decisions about cash crops is the lowest, perhaps not surprising given that men tend to dominate cash crop agriculture. Cross referencing these data with the respondent’s marital status shows similar responses across the three

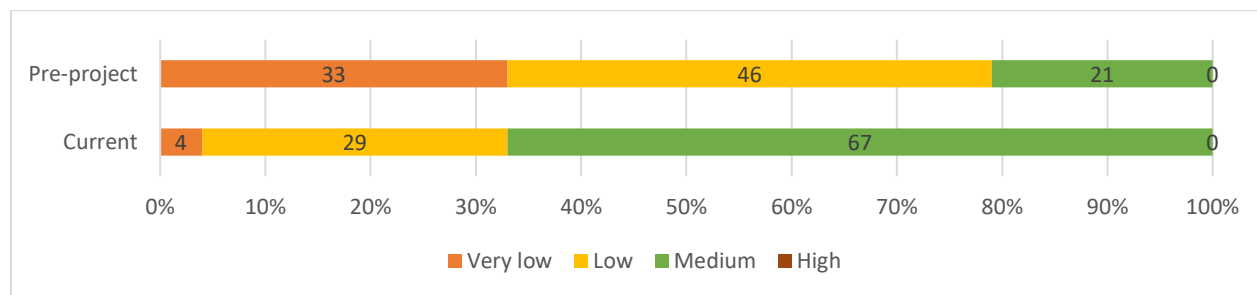
categories (married, separated/widowed, single), as Figure 1 describes. It is surprising that even in female-headed households that respondents do not report high levels of decision-making power.

Figure 1: Average of response distribution disaggregated by respondent's marital status - pre-project situation



In comparison, results from the current situation show a substantial increase in women’s participation in decision-making across all six productive decisions. The percent of women reporting very low participation fell by nearly 30 points, while those reporting medium participation jumped by 38-53 points. Yet it is telling that despite these meaningful gains, none of the women reported a high level of decision-making. Figure 2 visually depicts this shift to higher participation levels.

Figure 2: Longitudinal comparison of the distribution of power levels in productive decision-making, pre-project and current



Domain 2: Level of control over productive resources

Answers to six closed-response questions are analyzed in this section in order to measure this domain of empowerment. These questions asked who within the household has greater control over the following productive resources:

1. **Agricultural land suitable to produce food crops** (other than rice fields which are considered to be controlled by men as a cash crop)
2. **Agricultural land for cash crops and rice fields**
3. **Small agricultural tools:** hand tools such as spade or shovel
4. **Mechanized agricultural equipment:** animal-drawn plow, harrow, etc.
5. **Small livestock:** poultry, rabbits, etc.
6. **High value livestock:** zebu, etc.

“Control” is defined as the “decision-making power” over the resource. Participants were invited to provide their answer by selecting one of the following provided options:

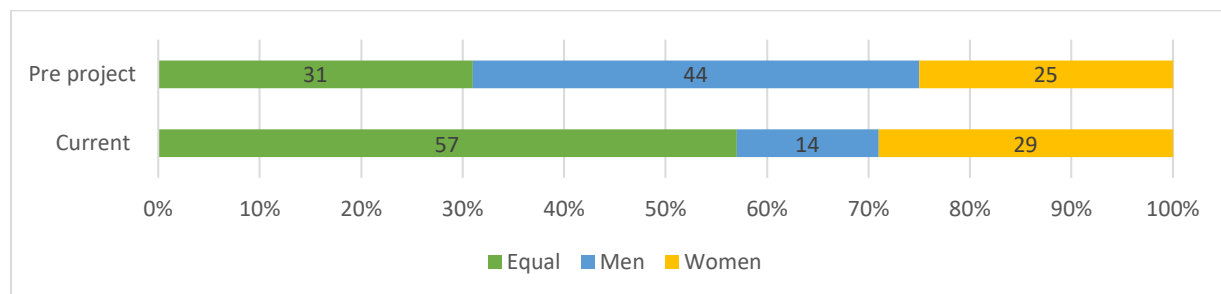
1. **Equal:** approximately equal level of control for men and women
2. **Men:** sole or higher level of control held by men
3. **Women:** higher level of resource control held by the respondent herself

Table 6 and Figure 3 below present the frequency (in percentage) of each response category for the six questions.

Table 6: Frequency of responses related to control over productive resources

Question: Who within the household has greater control over _____?	Pre-project situation (Frequency per category of response, in %)			Current situation (Frequency per category of response, in %)		
	Equal	Men	Women	Equal	Men	Women
Q1. food crop land	26%	51%	23%	54%	12%	34%
Q2. cash crop land	26%	51%	23%	56%	16%	28%
Q3. small ag tools	20%	52%	28%	52%	16%	32%
Q4. mechanical tools	23%	66%	12%	50%	23%	28%
Q5. small livestock	66%	0%	34%	85%	0%	15%
Q6. large livestock	26%	44%	30%	45%	15%	40%
Mean	31%	44%	25%	57%	14%	29%

Figure 3: Comparison of response distribution - control over resources, pre-project and current scenario



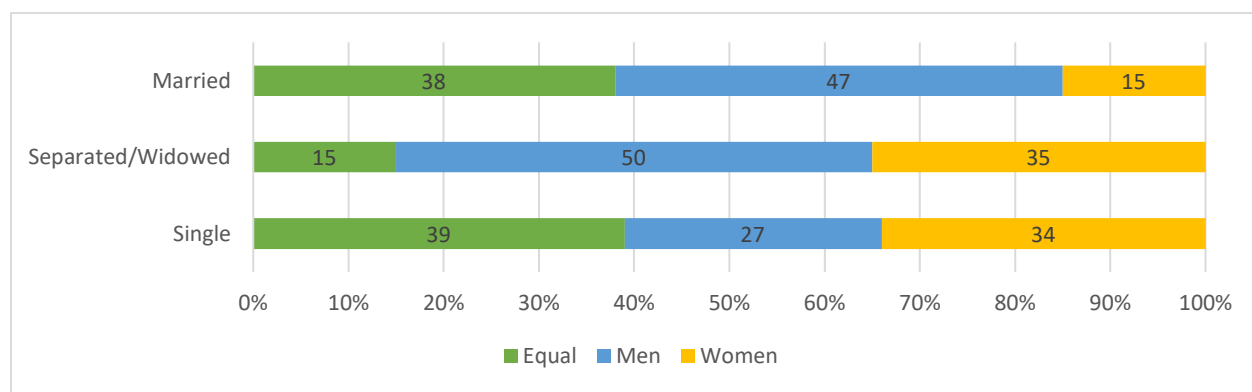
The results show a pre-project situation where men have majority control over nearly all of the productive resources with equal decision making occurring in about 1/3 of cases. Small livestock is the outlier, which is where women have a more significant level of control. Women were least involved in decisions about mechanized equipment which are used in agricultural roles in which men dominate. Men have a high level of control over land use decisions, tools, and large livestock.

A comparison between the pre-project and the current situation shows a notable shift in the distribution of responses with a significant increase in women’s level of control over productive resources. While women’s level of overall sole control increased only by about 4 percentage points (and, interestingly, decreased for small livestock), equal control jumped by 26 percentage points. This increase

in equal control indicates a positive trend towards including women in decisions about productive resources.

Cross-referencing this data with the respondent's marital status (Figure 4) shows a pre-project situation where the proportion of women reporting greater sole control over productive resources is significantly higher for separated/widowed and single women (35% and 34% respectively), compared to married women (only 15%). This illustrates the significant power that men have over resources within a household/couple. Interestingly, the proportion reporting sole male control seem to be almost the same for separated/widowed women (50%) and married women (47%) who report that men have the most control over these resources; this may be explained by the fact that women often have only secondary rights to productive resources (especially land) upon divorce or after the death of the husband⁶.

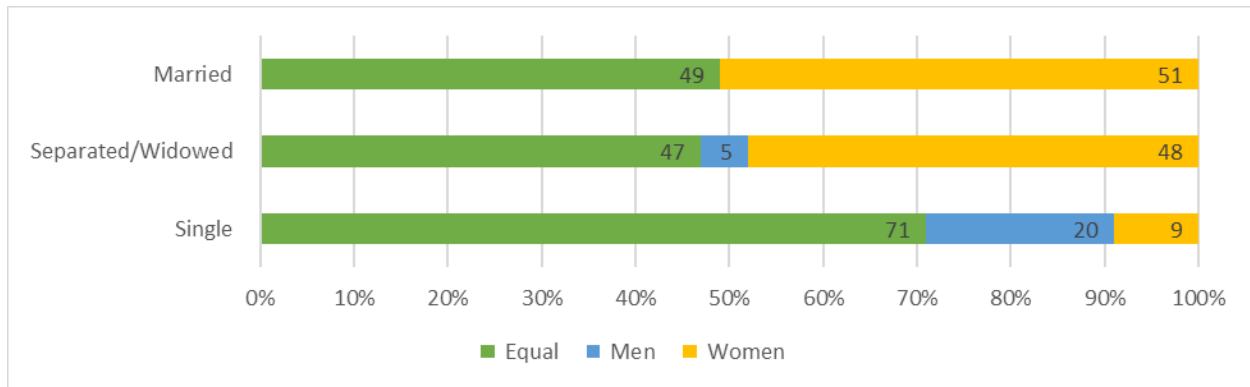
Figure 4: Comparison of level of control over productive resources according to marital status of respondents (pre-project)



The situation has evolved positively for all three categories of women within the current scenario, as illustrated in the Figure 5, with a greater proportion of the responses reporting a roughly equal level of control for the man and woman of the household or a higher level of control held by women. A decrease in the proportion of responses asserting a higher level of control by female respondents over these resources is noted, however, for single women. The reason for this may be explained by the fact that some single women have requested additional land from their families because they have enough quality seed to expand. This land is lent to them, without sole control.

⁶ Malagasy law provides men and women in civil relationships equal rights to property, even upon divorce; however, in practice many women lose access to land upon divorce as most marriages are traditional/customary (non-civil) and no regulations exist to protect their land rights. In customary marriages, husbands receive two-thirds of the property upon divorce, while inheritance laws place wives eighth in line for property brought to the marriage. (Kellum et al., 2020).

Figure 5: Comparison of level of control over productive resources according to marital status of respondents (current scenario)



Domain 3: Level of decision-making power over income

Answers to six closed-response questions are analyzed in this section in order to measure this domain of empowerment. These questions asked about the respondent’s level of control over six categories of income:

1. **Food crops:** income generated by sale of surplus subsistence crops
2. **Cash crops:** income earned through sale of major cash crops
3. **Small livestock:** income earned through sale of small livestock
4. **Large livestock:** income earned through sale of large livestock
5. **Agricultural wage labor:** income earned by working on other people's fields
6. **Self-earned income:** income women earned through various activities carried out on their own

“Control” is defined as the “decision-making power” over income (how it is used on expenditures and/or saved, etc.). Participants were invited to provide their answer by selecting one among the following provided options:

1. **High:** the respondent has the power to decide how to spend income; this does not totally preclude her from consulting a spouse, but she can decide on certain routine expenses of relative importance.
2. **Medium:** the respondent is beginning to have a say in how money is spent but still must consult with a spouse on most expenses that do not fall into the "living expenses" category (as that is seen as the domain of women).
3. **Low:** the respondent has limited decision-making power over income; sole or higher level of decision-making power over income is held by her spouse.

Respondents provided two answers for each question: one for the pre-project situation and another describing the current situation. Table 7 below presents the frequency (in percentage) of each response category for the six questions.

Table 7: Frequency of responses related to control over income

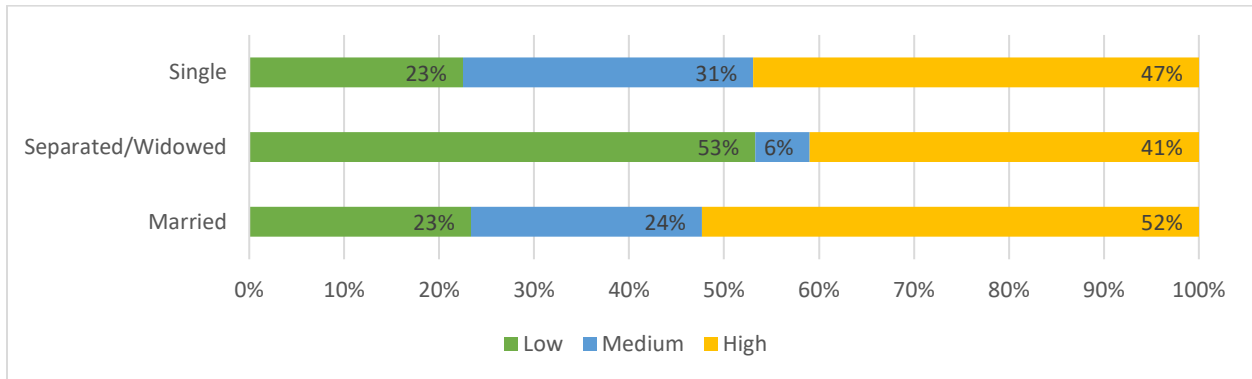
What is your level of decision-making power over use of income from _____?	Pre-project situation (Frequency per category of response, in %)			Current situation (Frequency per category of response, in %)		
	Low	Medium	High	Low	Medium	High

Q1. Food crops	32%	14%	54%	5%	28%	67%
Q2. Cash crops	34%	20%	46%	11%	39%	50%
Q3. Small livestock	23%	13%	64%	2%	26%	72%
Q4. Large livestock	49%	23%	28%	16%	39%	45%
Q5. Agricultural wage labor	49%	22%	29%	11%	37%	52%
Q6. Self-earned income	6%	28%	66%	9%	21%	70%
Mean	32%	20%	48%	9%	32%	59%

The table reveals a pre-project situation where women already seem to have relatively high levels of control over income, particularly in those areas where women tend to play a bigger role. For example, women had already more control over income earned through sale of crops, small livestock, and self-earned income, while their control over large livestock and agricultural wage labor, both of which are generally controlled by men, was more limited.

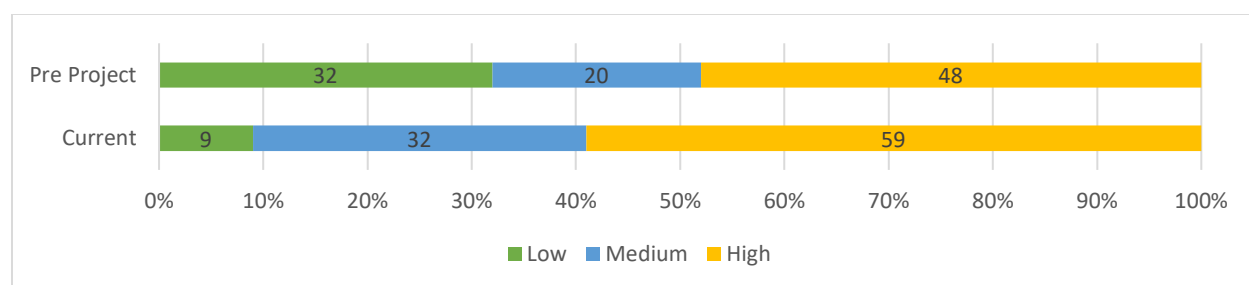
An analysis based on the marital status of respondents as presented in Figure 6 shows a pre-project scenario where twice as many separated/widowed women reported having lower control over income (53% of respondents) compared to the two other categories (23% of respondents). This is likely because divorced or widowed women often return to their family/village after the breakup/divorce or death of the husband and are not closely involved in managing household finances. Situations are quasi-similar for married and single women while the proportion of response indicating a “medium” level of control over income is slightly higher for single women (31%) compared to married women (24%).

Figure 6: Level of control over income, pre-project situation, by marital status



In comparison, the current situation reveals noticeable positive shifts in women’s control over income (Figure 7). Women reporting low control dropped 23 points, while those reporting medium and high control rose by more than 10 points each. These figures (6 & 7) are more positive in comparison to national-level data (Kellum et al., 2020), where 11% of women report low control, 58% medium, and 30% high. However, considering that all the respondents in this study are members of community groups, it is perhaps not surprising that they already have some level of empowerment in terms of household income management. Furthermore, considering that nearly 80% of household expenditures in both landscapes are allocated to food (results of the SLEM’s baseline study), it is understandable that women (who oversee food preparation) generally have more autonomy regarding these kinds of expenditures.

Figure 7: Comparison of pre-project and current scenario, control over income



Domain 4: Group membership

For this domain of empowerment, three indicators were studied:

- Membership within community groups
- Level of participation in community meetings
- Level of comfort in public-speaking

Membership within community groups

The project works through community groups and associations, so all women interviewed are currently affiliated with at least one type of group. Questions asked respondents about their membership in three types of community groups: (1) VOI/COBA, which are local forest management structures, one of the main target groups of the project; (2) producer groups which are mixed sex groups focused on the improvement of agricultural production; and (3) women’s associations which are groups of women from the same village or from surrounding villages and whose activities, which can be varied, revolve around the improvement of living conditions, including agricultural activities and income generation.

Respondents were asked to choose among two options, both for the pre-project and current situations:

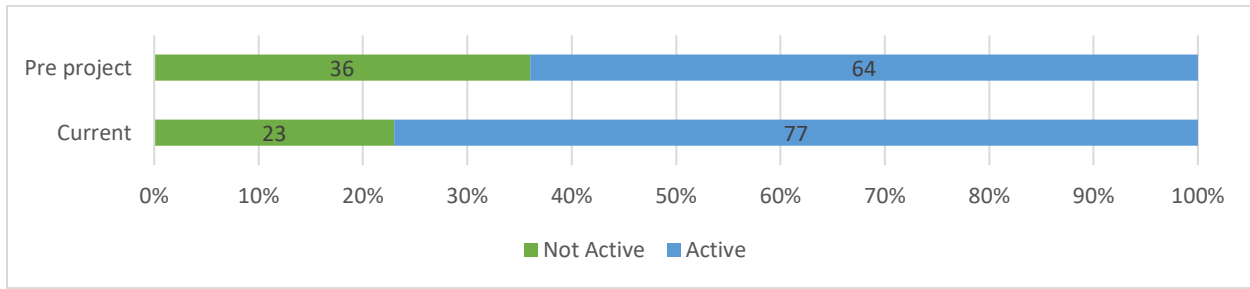
1. Member (not active): joined a group but her level of participation in meetings and decision-making is low.
2. Active member: the respondent has exceeded the simple status of member and is active in meetings and decision-making.

Table 8 and Figure 8 below summarize responses related to membership status within groups, disaggregated by the two points of time (pre-project and current scenario).

Table 8: Membership status within groups - pre-project and current scenario

Type of groups	Pre-project scenario		Current scenario	
	Member (Not active)	Active Member	Member (Not active)	Active Member
VOI/COBA	30%	70%	18%	82%
Producer group	32%	68%	25%	75%
Women’s Association	47%	54%	26%	75%
Mean	36%	64%	23%	77%

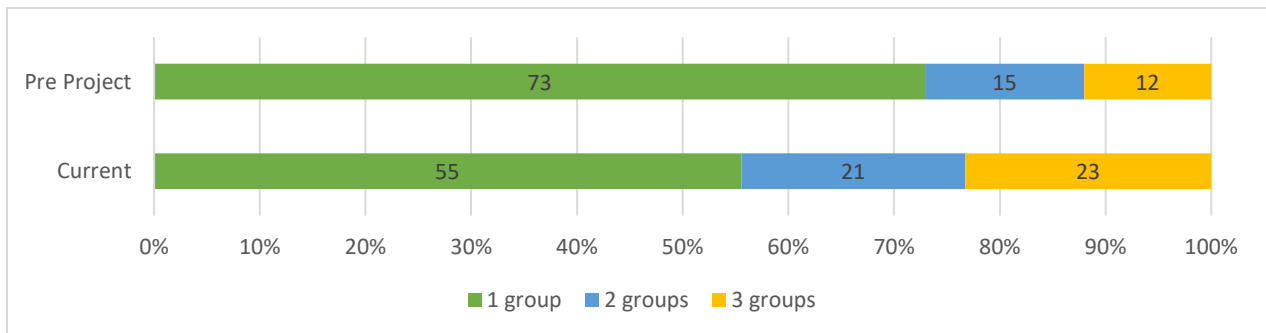
Figure 8: Evolution of level of participation within groups



The pre-project scenario showed an almost similar situation for members of mixed groups (VOI/COBA and producer groups) where approximately 64% of the respondents identified themselves as Active Members. In the current scenario, active membership has increased for all three types of groups, with a marked increase in the proportion of respondents reporting themselves as Active Members of groups. This change is most apparent in women’s associations (+21%) and less so in VOI/COBAs (+12%) and producer groups (+7%).

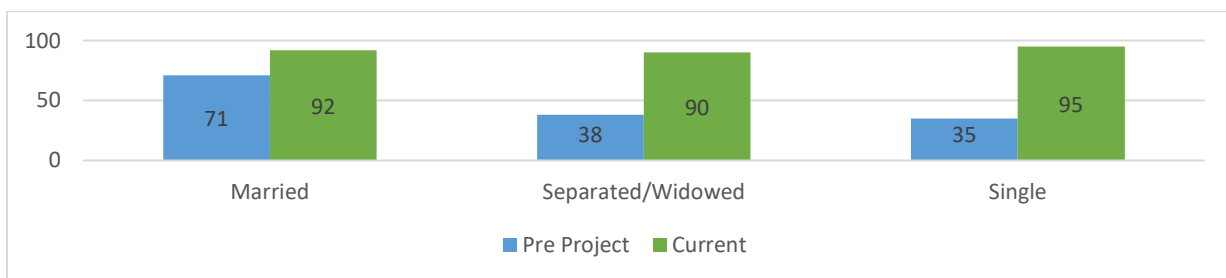
Respondents were also asked how many of the three groups they belong to, with results in Figure 9 showing that membership in at least two groups increased by more than 50%.

Figure 9: Change in the number of group memberships



Comparing the responses with the respondent's marital status (Figure 10), it is noted that in the pre-project situation, married women reported to be more active in groups than other women, however, the situation has changed in the current situation, where the three marital status categories have an almost equal percentage of respondents identifying as active members of groups.

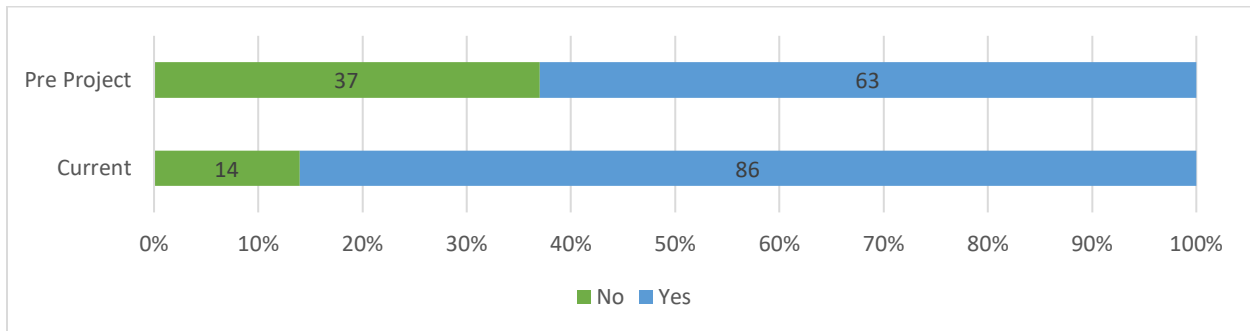
Figure 10: Percentage of women reporting active participation within groups in pre-project and current scenarios, disaggregated by marital status



Participation in community meetings

For this aspect, the question asked respondents if they are actively participating in community meetings. "Active participation" was defined as more regular attendance at community meetings as well as participation in discussions at those meetings. Responses are categorized in a dichotomous way (Yes/No). Results presented in Figure 11 show an increase of women that consider themselves as active participants in community meetings.

Figure 11: Respondents who consider themselves as active participants in community meetings.



Comfort with public speaking

This question asked whether respondents are comfortable speaking publicly in the presence of a mixed audience (both men and women). A dichotomous scale, yes/no response option was proposed to respondents for their answer for the pre-project and current situation.

While overall there is an overall small positive change in women's ease in public speaking, when assessed based on age, we see how those changes are correlated with the age of respondents. As shown in Figure 12 below, comfort in public speaking has not changed for the youngest respondents while it has somewhat improved for other women. Importantly, the data in Figure 13 show that almost half of the women (47%) are still report lack of confidence when it comes to speaking in front of a mixed-gender audience.

Figure 12: Percentage of women answering they are comfortable with public speaking, disaggregated by age

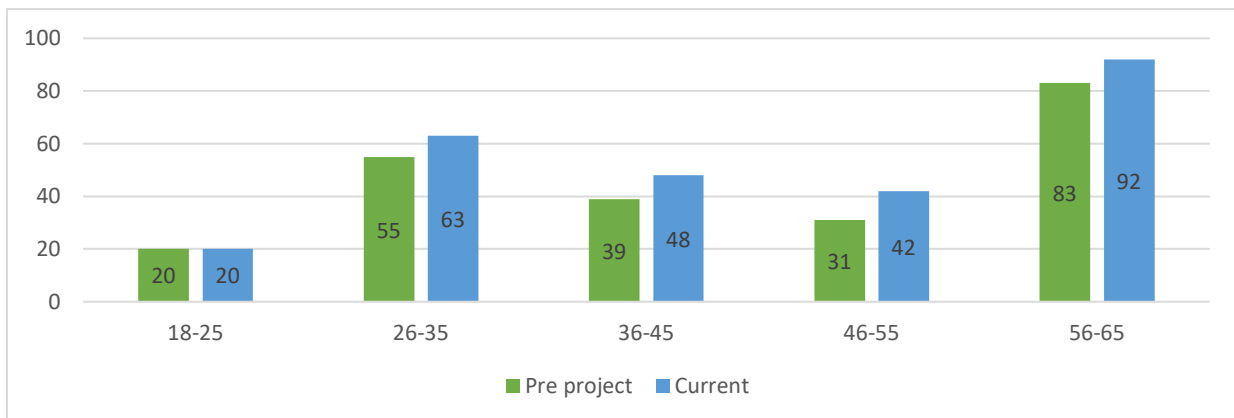
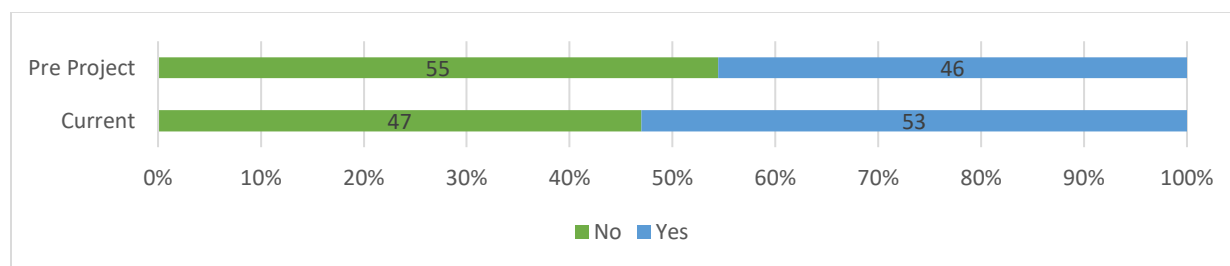


Figure 13: Overall percentage reporting comfort in public speaking – pre-project and current scenario



Domain 5: Time use/allocation

The indicator focuses on whether participation in the project has had a positive or negative impact on women's time allocation, recognizing that women often experience time burdens due to multiple roles and responsibilities. The project's impact is negative if the workload increased, and positive if workload decreased giving women more free time. Answers to four closed-response questions are analyzed in this section in order to measure this domain of empowerment. The questions address the impact of project participation on four types of activities:

- Change in the amount of time allocated to income-generating activities (i.e., agriculture/farming, paid labor, etc.)
- Change in the amount of time allocated to care work activities (i.e., caring for family, household chores, etc.)
- Change in the amount of time allocated to community/social activities (i.e., attending meetings).
- Change in the amount of free and leisure time.

Table 9: Change in time use due to project participation

Question: how has your project participation impacted time you allocate to _____?	Increased time	No change to time	Reduced time
Q1. productive activities	35%	52%	13%
Q2. Reproductive activities	12%	56%	32%
Q3. social and community activities	62%	33%	5%
Q4. free and leisure time	46%	37%	17%
Mean	39%	45%	17%

While nearly half of respondents (45%) reported no change in their time allocation, those that did report significant increases in time spent that on social and community activities, free time, and productive activities. Because the project focuses on working with community groups, it is likely that this resulted in an increase in time spent on those activities. Several respondents explained that the application of new farming techniques was time-consuming, explaining why data shows an increase in productive activities. The only activity that saw higher rates of reduced time allocation is reproductive (household & family care). This decrease may also correspond to time spent in other activities and possibly even a shift in household duties as men or others in the household take on more reproductive tasks. It is positive to see

that nearly half of respondents indicated they have seen an increase in free and leisure time, but perhaps concerning that 17% report reduced free time. Care must be taken to make sure that women's already time-burdened days are not exacerbated by the project.

Additional questions

In addition, the respondents were asked two additional questions to gather further insight and contextualize the quantitative data:

1. What challenges or constraints make it difficult to participate in, and benefit from, the project's activities?
2. What changes to her life she can identify because of her participation in the project?

Responses to these questions were generally short and, through inductive thematic analysis, fell into several clear key themes which are described in Tables 10 and 11. Some respondents provided multiple responses which were recorded separately.

Table 10: Challenges and constraints to participation & benefit

% of responses (N=49)	Challenges or constraints that make it difficult to participate in, and benefit from, the project's activities
45%	The workload needed for applying new agricultural techniques is seen as too laborious and respondents said they would need to pay temporary workers
21%	Other responsibilities prevented them from attending project-related meetings and trainings
21%	The seeds arrived too late in the agricultural calendar to be useful

Table 11: Changes in women's lives because of project participation

% of responses (N=89)	Changes in her life because of participation in the project
52%	Increases in revenue
31%	Improved production/food security
22%	Increased technical knowledge
22%	Increased comfort in public speaking and being taken more seriously by the community
8%	Gaining more respect from spouse and improving their exchanges

Several illustrative quotes from respondents further demonstrate these impacts:

MALAGASY	ENGLISH
"Ny vola azo tamin'ny fivarotana atody dia afaka nividianako ganagana fanampiny sy gisa. Lasa fidiram-bola maharitra ho ahy izany ary ahafahako mamelona ny zanako sy ny fianaran'izy ireo na dia nandao anay aza ny vadiko".	"With the income from selling eggs, I have been able to buy more ducks and geese and the income from this farm allows me to support my children and their schooling even though my husband has left us."

« Nanampy ahy tamin'ny fiantohana ny fianaran'ny zanako ny vola azo tamin'ny fivarotana vokatra tsaramaso”	"The money earned from the sale of bean crop products has helped me a lot with my children's schooling."
"Faly aho fa afaka mandray anjara amin'ny fandaniana ao an-trano. Tsapako fa misy dikany amin'ny vadiko kokoa aho noho izany."	"I am proud to be able to contribute more to my household expenses. I feel better regarded by my husband."
“Nimenomenona ny vadiko hoe mandany fotoana mivorivory aho. Namporisika ahy izy taty aoriana mba hanohy ny fikambanana satria hitany fa sady nahazo masomboly sy fitaovana aho no ”.	"At first, my husband thought that meetings with other women were a waste of time. But when he realized that I was able to obtain seeds and agricultural materials through the group, and that I was able to earn money through the sale of my products, he encouraged me to invest more in my group myself."
"Sarokenatra be aho taloha, tsy sahy miteny anaty fivoriana. Ny fandraisana anjara matetika tao amin'ny fivorian'ny vondrona dia nahatonga ahy hatoky tena kokoa ary mahafaly ahy izany."	"I never dared to speak in public before. Frequent participation in group meetings has made me feel more confident and it makes me proud."
"Faly aho fa manana nahay teknika fambolena nohatsaraina. Mahafinaritra ahy rehefa mila hevitra amiko momba izany ny vadiko."	"I am proud to have more mastery of improved farming techniques. I am especially proud when my husband asks my opinion on these aspects."

The responses to these additional questions point to both important direct project-related issues (e.g., workload for new agricultural techniques and late seed arrival) as well as ongoing context challenges (e.g., other responsibilities). The responses to changes in women’s lives are positive, aligning with many of the goals of the project; however, the percentages could always improve.

Conclusion

The project has clearly contributed to some important changes in women’s empowerment, with the data showing significant increases in women’s empowerment across all the domains of empowerment examined in the study. While it is noted that this study does have some constraints (described in the methodology section, e.g., COVID-19, perception bias), the responses show positive changes from pre-project vs. current scenarios.

Having a clear, tailored, well resourced, and well-staffed gender plan is critical to advancing these changes. With a good understanding of the gender roles and responsibilities among small-scale farming families and communities, and a targeted gender action plan that is staffed and budgeted adequately, the project has been able to direct resources towards women’s engagement. As an example of the project’s adaptive management, the original desk-top gender analysis done during project design (2016) was updated in 2019 during early project implementation, and again in 2022 with the results of this analysis. This dynamic approach to understanding the gender context, incorporating, and responding to changes that happen over time, and frequent assessment of progress has certainly contributed to these significant changes in women’s agricultural empowerment that this study identifies.

The study points to important practices that have been particularly effective. These are efforts that should continue to be supported in this project and could be good practices to consider in other similar projects focusing on women's engagement in smallholder farming. These include:

- **Supporting participation of women in producer groups.** This approach helps women to gain knowledge through training and technical support at the producer group level, as well as to increase their empowerment through participation in associations/cooperatives. These groups, being mixed, also provide opportunities for women to engage with male peers on shared goals.
- **Targeting women's groups.** The project's very specific goal of identifying and working with women's groups is important for reaching women settings where they tend to be more comfortable and confident. Formally engaging in this project provides an opportunity for women in these groups to further create a safe space with shared goals, which can then provide an important support network for each other beyond the life and scope of the project.

Importantly, the study also points to areas where the project may want to direct additional attention for the remaining life of the project. In particular:

- **Women's confidence in public speaking.** While there is some growth in women's ease in public speaking, it is limited. The project could consider designing interventions to target this area more specifically, though targeted training for women and discussions with men/male leaders.
- **Alternative or additional support to promoted agricultural techniques.** As indicated in the responses, the new agricultural techniques that the project promotes require more resources in terms of time, labor force, and capital than traditional techniques. The agricultural team needs to conduct a more in-depth study to find solutions that require less time and labor but still provide sufficient products with comparable increases in livelihoods and resilience.

Changes in gender norms, and women's influence and control over household assets, income, and decision-making, is a long-term process. Redefining the roles and responsibilities of women and men that have been entrenched for generations will not happen during a 5-year project. Rather, efforts like these can help to strengthen and support change that is already happening as one contribution towards improved resilience to climate change. As projects like this one proactively target women's engagement and influence in agriculture through holistic, community-based activities, the trend will continue. Social barriers and expectations of individuals and the collective community shift when new behaviors (like women vocally engaging in discussions) become normalized and widespread. As an example of possible long-term, structural changes in gender norms, there are now 10 women forest patrollers in the CAZ landscape, a role that until now was unheard of. It is quite possible that this change has stemmed from the efforts of this project, raising awareness, and building women's leadership, and should be investigated further.

Given these initial indications of significant change, and the fact that these data were collected in the first half of the project, it is advisable to conduct another similar study at the end of the project. A final study would provide additional evidence of project impact and be able to draw further conclusions about the success of project on influencing gender norms. This study could also include men respondents, who obviously play a key role in supporting and allowing women to enter and succeed in decision-making spaces.

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Appendix 1: Questionnaire

Gender and women empowerment monitoring survey 2021 – SLEM Project – CI Madagascar

0. RESPONDENT’S IDENTIFICATION

0.1 Fokontany: _____

0.2 Commune: _____

0.3 District: _____

0.4 Sex:

1 = Female – 2 = Male

0.5 Respondent’s age: |__|__|

0.6 Matrimonial status:

1 = Single - 2 = Married – 3 = Separated / Divorced / Widow-er

0.7 Respodent’s status within the household:

1= Lead of the HH – 2 = Spouse –
3 = Other within a MHH* – 4= Other within a FHH**

* MHH : men-led household (HH)

** FHH :female-led household

Code	Questions	Now (a)	Before (b)	a - b	Réponses / Codes
1. Productive decisions : Within your HH, how can you evaluate your level of participation in decision-making regarding _____ ?					
1.1	The choice of the use of agricultural lands				1 = very low (never participates in decision making); 2 = low (very rarely participates in decision making) 2 = average (frequently consulted on certain aspects) 3 = good (consulted systematically; can make
1.2	The choice of speculations / varieties to be cultivated				
1.3	The choice of agricultural techniques to be applied				
1.4	The choice of the use / affectation of food crops production				
1.5	The choice of the use / affectation of cash crops production				
1.6	The sale of agricultural or livestock products				

					decisions on his own)
2. Control over resources : Who has control over the following productive resources?					
2.1	Agricultural land suitable to produce food crops (other than rice fields)				1 = The man; 2 = The woman; 3 = Both;
2.2	Agricultural land for cash crops and rice fields				
2.3	Small agricultural tools (hand tools such as spade and shovel)				
2.4	Mechanized agricultural equipment (animal-drawn plow, harrow, etc.)				
2.5	Small livestock (poultry, rabbits, etc.)				
2.6	High value livestock (zebu, etc.)				
3. Control over income : Who within the household makes decisions on the use of incomes generated by the following activities?					
3.1	Food crops products selling ?				1 = The man; 2 = The woman; 3 = Both;
3.2	Cash crops products selling?				
3.3	Small livestock selling?				
3.4	Large livestock selling ?				
3.5	Agricultural wage labor?				
3.6	Other nonagricultural income-generating activities?				
3.7	activities that you yourself have undertaken independently?				
4. Community leadership : Are you a (an active) member of the following community structures?					
4.1	A local forest management structures (VOI) ?				1 = No; 2 = yes but not very active; 3 = Yes and active
4.2	A producer's organization?				
4.3	A women association?				
4.4	Do you participate (actively) in community meetings?				
4.5	Are you comfortable speaking in public during mixed sex group meetings?				1 = No; 2 = Yes;
Domaine 5 – Time allocation: Has your participation in Project activities affected the amount of time you spend on the following activities?					
5.1	Productive activities? (Agricultural activities, wage employment, etc.)				1 = No change 2 = Increased time spent on this activity 3 = Reduction of time spent on this
5.2	Reproductive activities? (Domestic chores, childcare, buying and preparing meals, health-related activities, etc.)				

5.3	Social / community activities (voluntary service, cultural activities, festivals and rites, care for the elderly, etc.)			
5.4	Free time and leisure			
5.6	Is your current workload a constraint on your participation in Project activities?			1 = No 2 = Yes, but a little 3 = Yes, and a lot

6. What other challenges or constraints make it hard for you to engage with the project?

7. How has your life changed because of the project?

8. Is there anything else you'd like to tell me about the project?