

THE SUSTAINABLE AGRICULTURE PRODUCTIVITY IMPROVEMENT PROJECT (SAPIP/MALFF'S)

Ministerio Da Agricultura,Pecuária, Pesca E Florestas

ENDLINE EVALUATION

FINAL REPORT

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Foreword



The Ministry of Agriculture Livestock Fisheries and Forestry's (MALFF), therefore I have delighted to present a final report of The Sustainbale Agriculture Productivity Improvement Project (SAPIP) Endline Evaluation Result which conducted from 17 Jun - July 21, 2025 to the Global Agriculture and Food Security Program (GAFSP) who financial the project and supported by the World Bank Group.

The purpose of Endline evaluation is to assess the performance of the project implementation and document its achievements, challenges, and best practices to inform future similar programs. The evaluation will also ensure the project participants (beneficiaries). Furthermore, the evaluation will offer valuable learning opportunities for all stakeholders involved.

SAPIP has three key indicators at the PDO level. By the end of the project: (i) increase in farm productivity (yield per hectare) for direct beneficiary households by at least 20 percent for major crops; (ii) share of production that is lost post-harvest will have been reduced by at least 10 percent for major crops; and (iii) share of total production 6 sold on the market will have increased by at least 20 percent.

The Endline Assessment covers seven municipalities (Ainaro, Bobonaro, Covalima, Ermera, Lautem, Liquiça, and Oecusse) and evaluates four core project components: (1) Integrated watershed/sub-watershed agriculture development planning, (2) Smallholder organization, advisory support and training, (3) Sustainable watershed/sub-watershed management and support to farmer groups, (4) Strengthening MALFF's Services, Planning, Programming, Coordination and Monitoring and Evaluation Functions. The Endline Assessment data collection included household surveys, key informant interviews (KIIs), focus group discussions (FGDs), and field observations. A total of 522 treatment group respondents and 200 control group respondents participated in the quantitative survey.

SAPIP/MALFF has made measurable progress toward its development objectives, particularly in promoting improved land management, reducing post-harvest losses, and enhancing market access for vegetables and livestock. However, continued support is needed to sustain these gains, especially through targeted technical follow-up, institutional capacity building, and gender-inclusive programming. Expanding successful practices to other underserved areas and investing in infrastructure and market linkages will be crucial to ensuring long-term impact.

On behalf of MALFF, I extend my deep appreciation and our sincere gratitude to the World Bank for supporting SAPIP project. I am sure that the report will become a key reference to project indicator and project continuation.

Eng. Marcos da Cruz, MagSt
The Minister

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ACRONYMS

Acronym	Definition
AEW	Agriculture Extension Worker
BA	Beneficiary Assessment
CLN	Centro Logístico Nacional
CSA	Climate-Smart Agriculture
DAF	Directorate of Agricultural Facilities
D-Eight	D-Eight Consulting
FAO	Food and Agriculture Organization of the United Nations
FGD	Focus Group Discussion
GoTL	Government of Timor-Leste
HH	Household
KII	Key Informant Interview
LMP	Land Management Practice
MALFF	Ministry of Agriculture, Livestock, Fisheries and Forestry
M&E	Monitoring and Evaluation
MoEYS	Ministry of Education, Youth and Sports
MoH	Ministry of Health
NGO	Non-Governmental Organization
NSA	Nutrition-Sensitive Agriculture
PDO	Project Development Objective
SAPIP	Sustainable Agriculture Productivity Improvement Project
SDG	Sustainable Development Goal
SLG	Savings and Loan Group
SALT	Sloping Agricultural Land Technology
SRI	System of Rice Intensification
TG	Treatment Group
CG	Control Group
UNCRPD	United Nations Convention on the Rights of Persons with Disabilities

I. EXECUTIVE SUMMARY

The **Sustainable Agriculture Productivity Improvement Project (SAPIP) and MALFF**, implemented under the Ministry of Agriculture, Livestock, Fisheries and Forestry (MALFF) with funding from the World Bank, was designed to improve the productivity and marketed production of smallholder agriculture in targeted watersheds across Timor-Leste. This Endline Evaluation assesses the project's achievements, challenges, and lessons learned across its implementation period, drawing comparisons with baseline and midline data and incorporating quantitative and qualitative feedback from beneficiaries and stakeholders.

Project Coverage and Methodology

The Endline Assessment covers seven municipalities (Ainaro, Bobonaro, Covalima, Ermera, Lautem, Liquiça, and Oecusse) and evaluates four core project components: (1) Integrated watershed/sub-watershed agriculture development planning, (2) Smallholder organization, advisory support and training, (3) Sustainable watershed/sub-watershed management and support to farmer groups, (4) Strengthening MALFF's Services, Planning, Programming, Coordination and Monitoring and Evaluation Functions.

Data collection included household surveys, key informant interviews (KIIs), focus group discussions (FGDs), and field observations. A total of 522 treatment group respondents and 200 control group respondents participated in the quantitative survey.

Key Findings

- **Productivity (PDO 1)**: The SAPIP project has significantly boosted the productivity of both paddy and maize. For paddy, the results were more than doubled, increasing from a pre-SAPIP baseline of 1.22 ton/ha to an impressive 2.6 ton/ha post-intervention. Maize productivity also showed notable improvement, rising from 0.6 ton/ha before SAPIP to 0.8 ton/ha after. The combined productivity for paddy and maize increased to 45%, which substantially exceeded the SAPIP endline target of 20% improvement.
- **Post-Harvest Losses (PDO 2)**: SAPIP/MALFF interventions notably reduced post-harvest losses. Paddy losses fell from 25% (baseline) to 5% (endline), with maize losses decreasing from 22% to 10%. The overall reduction of loses for both paddy and maize fell short by 16% different from the 24% of the pre-SAPIP/MALFF's period, and the post-harvest losses reduced significantly by 17% from the 10% of the end target set, which technically reduced to 7% in the endline. Improved storage (e.g., silos and metal drums) and access to threshing machines contributed to these reductions.
- **Market Sales (PDO 3)**: Sales of vegetables and livestock improved, while paddy and maize underperformed due to seasonal timing and market access barriers. Vegetables had the highest endline sales ratio at 83.9%, up from 74.7% at baseline. Livestock sales rose from 19.4% to 41%, with notable increases in pigs (23% sales share) and cows (43.1%). Conversely, rice and maize increase only from 11% to 26 % sales ratios.
- **Land Management Practices**: Adoption of improved land management practices (LMP) increased significantly in the treatment group. Among 522 farmers surveyed, 310 adopted hand tractors (around 59%), while 131 (25%) and 107 (21%) adopted composting and liquid fertilizer, respectively. Adoption of Sloping Agricultural Land Technology (SALT) reached 64 (12%) farmers, and land/dac weeding equipment was adopted by 43 (8%). Tunnel and greenhouse adoption remained low at 13 (3%).
- **Female Adoption of LMP**: Out of 266 female farmers, 20% adopted hand tractors, 8% adopted composting, and 6% used liquid fertilizer. Lower adoption was seen in SALT (4%), weeding equipment (3%), and tunnel/greenhouse usage (1%).

- **Agricultural Technology Adoption**: A total of 708 adoptions were recorded across five technologies. Milling machines were the most adopted (48%, or 340 farmers), followed by threshing machines (32%, or 227). Coffee milling, coconut pressure, and pellet machines were adopted by 74 (10.5%), 48 (7.8%), and 19 (2.7%) farmers, respectively. Technology adoption by female farmers followed similar trends, with 47% using milling and 29% threshing machines.
- **Gender Equity**: While overall participation was high, disparities in women's access to training and technologies were evident. Suggestions were made to improve equitable access to ensure both men and women benefit equally from interventions.
- **Institutional Strengthening**: Progress was made in establishing M&E systems within MALFF, though operationalization remains ongoing. FAO was contracted to support system development, with further funding requested to complete activities.

Challenges Identified:

- Limited technical follow-up and monitoring reduced the sustainability of some interventions.
- Transportation and staffing constraints hindered regular support by extension officers.
- Disease outbreaks affected pig and poultry productivity.
- Inadequate technical knowledge limited effective equipment maintenance.
- Tree seedling distribution often mismatched with seasonal conditions.
- Lack of market linkage.

Conclusion and Recommendations

SAPIP/MALFF has made measurable progress toward its development objectives, particularly in promoting improved land management, reducing post-harvest losses, and enhancing market access for vegetables and livestock. However, continued support is needed to sustain these gains, especially through targeted technical follow-up, institutional capacity building, and gender-inclusive programming. Expanding successful practices to other underserved areas and investing in infrastructure and market linkages will be crucial to ensuring long-term impact.



II. INTRODUCTION

2.1. Background of SAPIP/MALFF

The **Sustainable Agriculture Productivity Improvement Project (SAPIP/MALFF)** was launched in 2016 under the leadership of Timor-Leste's Ministry of Agriculture, Livestock, Fisheries, and Forestry (MALFF), with funding support from the Global Agriculture and Food Security Program (GAFSP) through the World Bank. SAPIP/MALFF is a USD $21 million, 10-year investment designed to improve productivity and marketed production of smallholder agriculture using a watershed-based planning approach combined with integrated support.

The project operated across seven target municipalities: Ainaro, Bobonaro, Covalima, Ermera, Lautum, Liquica, and Oecusse. SAPIP/MALFF focused its interventions within four priority watersheds, chosen for their agricultural potential, environmental vulnerability, and strategic importance to rural livelihoods: 1) Loes Watershed, 2) Bee Lulik Watershed, 3) Raumoco Watershed, and 4) Tono Watershed (Oecusse).

SAPIP/MALFF's integrated model combined participatory watershed planning with a suite of support activities, including:

1. **Capacity building** and advisory services for farmers and local institutions
2. **Farmer Group training and organization**
3. **Access to agricultural inputs and technologies**
4. **Small grants** to support adoption of improved practices
5. **Institutional strengthening** of MALFF and the Timor-Leste Agricultural Research and Development Institute (TLARDI)

This systems-oriented approach aimed to address key constraints including land degradation, low productivity, high post-harvest losses, weak extension services, and limited market access. By working through farmer groups and local governance structures (e.g., Watershed Management Councils), SAPIP/MALFF sought to build sustainable, climate-resilient farming systems.

SAPIP/MALFF was guided by 4 Project Development Objectives (PDOs):

Improve Productivity (PDO 1) Enhance the productivity of smallholder farming systems through better access to inputs, improved practices, and integrated watershed management.
Reduce Post-Harvest Losses (PDO 2) Minimize losses due to poor harvesting, handling, and storage practices by introducing better post-harvest technologies and practices.
Increase Market Engagement (PDO 3) Support farmers to move beyond subsistence by improving access to markets, promoting commercialization, and strengthening value chains.
Strengthen Institutional Access and Services (PDO 4) Improve the delivery and coordination of agricultural and natural resource management services through capacity building and participatory planning, particularly at the watershed and municipal levels.

Across the life of the project, over 550 farmer groups were mobilized and supported through technical training, extension services, and co-financed grants, contributing to improved resilience, food security, and income for rural households.

2.2. Purpose of the End-line Assessment (evaluation objectives, scope, and key questions)

This endline evaluation assessed progress made toward achieving SAPIP/MALFF's development objectives, with a focus on improvements in smallholder productivity, reductions in post-harvest losses, increased market engagement, and the adoption of sustainable land and agricultural practices. It also documented key achievements, identified implementation challenges, captured beneficiary feedback, and drew out lessons to inform future agriculture and watershed interventions in Timor-Leste.

The Project Development Objective (PDO) was to increase the productivity and marketed production of smallholder agriculture in selected geographical locations through four technical components: (i) Integrated watershed/sub-watershed agriculture development planning, (ii) Smallholder organization, advisory support and training, (iii) Sustainable watershed/sub-watershed management and support to farmer groups, (iv) Strengthening MALFF's Services, Planning, Programming, Coordination and Monitoring and Evaluation Functions. Specifically, the assessment aims to:

1. Evaluated SAPIP/MALFF's impact across its four core components and PDO indicators.
2. Compared endline outcomes with baseline, midline, and control group findings to assess progress over time.
3. Captured beneficiary perspectives on the relevance, effectiveness, and sustainability of project interventions.
4. Provided recommendations to guide future project design, scale-up strategies, and policy direction for MALFF and development partners.

2.3. Methodology Overview (data collection approaches, sampling, limitations)

The SAPIP/MALFF Endline Evaluation employed a mixed-methods approach, combining quantitative and qualitative data collection to assess the outcomes and impact of project interventions across seven municipalities: Ainaro, Bobonaro, Covalima, Ermera, Lautem, Liquiça, and Oecusse. Data was collected between June and July 2025, covering all four SAPIP/MALFF technical components:

1) Integrated watershed/sub-watershed agriculture development planning,
2) Smallholder organization, advisory support and training,
3) Sustainable watershed/sub-watershed management and support to farmer groups,
4) Strengthening MALFF's Services, Planning, Programming, Coordination and Monitoring and Evaluation Functions.

Quantitative data were gathered through structured household surveys conducted with 522 treatment group respondents and 200 control group respondents. The sample was stratified by municipality and type of intervention to allow for comparative analysis across baseline, midline, and endline stages. Key indicators aligned with the project's Results Framework were measured, including productivity levels, technology adoption, post-harvest loss percentages, and market sales ratios.

Qualitative methods included 17 key informant interviews (KIIs) and 7 focus group discussions (FGDs) with a diverse set of stakeholders—farmers, extension officers, local leaders, and government representatives. These provided contextual insights into the implementation process, perceived changes, and sustainability prospects.

Data triangulation was applied to validate findings and ensure reliability, using document review (e.g., project reports, M&E data) to complement primary field data.

Limitations of the evaluation include timing-related constraints, as several farmer groups had not yet harvested or sold produce during the data collection period, affecting the measurement of sales outcomes. Additionally, while care was taken to ensure gender inclusion, some gender-disaggregated data remain incomplete due to inconsistent record-keeping at the municipal level. External factors such as climate variability and market disruptions may also have influenced some outcome indicators.

Despite these challenges, the evaluation provides a robust basis for assessing SAPIP/MALFF's contributions and identifying areas for further support and scale-up.

III. METHODOLOGY

3.1. Evaluation Design

The endline assessment employed a mixed-methods design, combining quantitative surveys, qualitative fieldwork, and desk reviews to provide a comprehensive view of SAPIP/MALFF's performance and impact. The approach was grounded in the Project's Results Framework and aligned with the PDO indicators. The methodology was designed to assess the situation analysis, outputs, outcomes, and impacts of the Project, ensuring coherence with SAPIP/MALFF's original design and implementation strategy.
Standardized data collection guidelines and tools were used to ensure consistency across sites. Appropriate sampling techniques, data analysis methods, and statistical software were applied to support robust analysis. Methodology tools were developed collaboratively by D-Eight, SAPIP/MALFF, and the World Bank, and were validated by MALFF. Data collection and analysis were aligned with the five components of SAPIP/MALFF's M&E system.

3.2. Data Collection Methods:

The SAPIP/MALFF endline evaluation employed a mixed-methods approach to generate comprehensive insights into project performance, outcomes, and areas for improvement. This approach combined quantitative and qualitative data collection methods to ensure triangulation of findings and a deeper understanding of both beneficiary experiences and institutional processes.

A desk review of SAPIP/MALFF documents and relevant secondary literature provided the foundation for tool development and contextual understanding of project objectives, implementation strategies, and agricultural challenges. Quantitative surveys were conducted with both beneficiary and non-beneficiary households to compare agricultural productivity, post-harvest losses, adoption of sustainable farming practices, and market sales. Farmer group surveys further assessed production trends, training effectiveness, and group functionality.

To complement quantitative data, qualitative methods were employed, including Key Informant Interviews (KIIs) with stakeholders such as government officials, project implementers, and technical partners, as well as Focus Group Discussions (FGDs) with farming communities to capture perceptions, challenges, and recommendations. The use of Kobo Toolbox for digital data collection enhanced efficiency, enabling real-time capture and streamlined analysis.

The core data collection methods included:

1. **Desk Review:** Project documents, progress reports, training materials, and baseline and midline evaluations were reviewed to inform evaluation design and contextualize findings.
2. **Household Surveys:** Structured surveys were administered to both SAPIP/MALFF beneficiary households and a comparison group in non-beneficiary areas to assess productivity, training uptake, technology adoption, and market sales.
3. **Farmer Group Surveys:** Data was collected on group functionality, access to training and grants, and use of improved agricultural practices and technologies.
4. **Key Informant Interviews (KIIs):** Conducted with MALFF staff, extension officers, municipal coordinators, NGO partners, and implementing units to gather insights on institutional capacity and project delivery.
5. **Focus Group Discussions (FGDs):** Held with male and female farmers across municipalities to explore group experiences, challenges, and expectations.

This multi-faceted evaluation design enabled a robust and evidence-based assessment of SAPIP/MALFF's achievements and lessons learned, contributing valuable inputs for future programming and policy development.

3.3. Sampling Strategy

Sampling was designed to ensure geographic representation across all seven SAPIP/MALFF municipalities, with priority given to sucos where project activities were most concentrated. Households were randomly selected from farmer group lists, based on an estimated 9,000 households that directly benefited from the SAPIP/MALFF program. A total of 40 sucos and 522 beneficiary households were randomly selected for the endline survey. Statistically, the sample was drawn from a target population of approximately 16,500 households (based on SAPIP/MALFF/MALFF's targeted households), providing a 95% confidence level and a margin of error of ±4.22%.

In addition, a comparison group of 200 non-beneficiary households from similar agro-ecological zones were included to support control analysis. These households, identified with the assistance of SAPIP project officers and MALFF field staff, had not directly participated in SAPIP/MALFF activities. However, they may have indirectly benefited through knowledge sharing or agricultural support from beneficiary households.

The control group was used to triangulate findings with the treatment group, particularly when comparing adoption of improved land management practices, uptake of new technologies, and market sales ratios for vegetables and livestock. Gender balance and regional diversity were considered in the overall endline sample, as well as in the selection of participants for focus group discussions (FGDs) and key informant interviews (KIIs).

3.4. Data Analysis Techniques

Quantitative data were analyzed using descriptive statistics and comparative analysis to assess changes from baseline and midline. Qualitative data from KIIs and FGDs were thematically analyzed to identify key trends, challenges, and beneficiary narratives. Mixed-method triangulation was used to validate findings across sources.

3.5. Limitations and Mitigation Strategies

- **Timing constraints** limited follow-up with some farmer groups; mitigation included using trained local enumerators, obtaining phone numbers, and extended field time where possible.
- **Respondent recall bias** was addressed through crosschecking with group records and triangulating with other sources.
- **Political and administrative transitions** affected access in some municipalities; team adapted by focusing on areas with confirmed data availability.



IV. FINDINGs AND ANALYSIS

At the start of SAPIP/MALFF implementation, farming households across the target municipalities faced numerous challenges limiting productivity, income generation, and resilience. The 2019 Baseline Survey captured the following key conditions:

1. **PDO1 – Productivity:**
   - Yields for key crops such as maize, cassava, and rice were low and highly variable across sites.
   - There was limited adoption of improved seeds, fertilizer, or soil management practices.
   - Farmers struggled with water scarcity and soil erosion, which undermined planting reliability.
2. **PDO 2 – Post-Harvest Losses:**
   - Estimated 20-35% post-harvest losses for many staple crops due to poor drying, pest damage, and inadequate storage.
   - Use of improved post-harvest technologies was minimal or absent.
3. **PDO 3 – Market Engagement:**
   - The majority of households practiced subsistence farming, with only a small portion of surplus produce sold, often to informal local traders.
   - Women's participation in marketing and income decisions was limited, reflecting gender barriers in value chain access.
4. **PDO 4 – Institutional Access and Support Services:**
   - Access to extension services, input suppliers, and financial services was extremely limited.
   - Municipal agricultural services were under-resourced, and awareness of suco- or watershed-level planning processes was low.

4.1 COMPONENT 1: Integrated Watershed/Sub-Watershed Agricultural Development Planning

SAPIP/MALFF/MALFF adopted a landscape-based approach to agricultural development by promoting participatory watershed and sub-watershed planning in four priority watersheds: Loes, Bee-Lulik, Raumoco, and Tono. Through the establishment of Watershed Management Councils (WSMCs) and the development of Suco and Watershed Agricultural Development Plans (SCAPDs and WADPs), the project aimed to integrate environmental stewardship with agricultural productivity. These plans provided a platform for aligning local land use priorities with broader climate resilience and conservation goals. Key investments under this component included reforestation activities, soil conservation infrastructure, and the rehabilitation of suco-level community halls to serve as hubs for planning and implementation. This component also laid the foundation for coordinating support services, infrastructure, and farmer outreach in each watershed area.

4.1.1.Watershed Management Councils Established and Operational (WSMCs) (cumulative) (number)

Under the SAPIP/MALFF program, the establishment and operationalization of watershed management councils was initially targeted across four watersheds covering seven municipalities: Raumoco watershed (Lautem), Bee Lulik watershed (Ainaro, Covalima), Loes watershed (Bobonaro, Ermera, Liquiça) and Tono (Oecusse).

The SAPIP/MALFF Midline Assessment (2023) reported that only Ainaro had an active watershed committee at that time—posing structural and organizational challenges. No functional watershed committees were identified in the other three watersheds. The midline recommended prioritizing the

operationalization of these councils through the development of more practical procedural frameworks and the provision of intensive implementation support across all seven municipalities.

By the endline, KIIs confirmed that all four targeted WSMCs—Bee Lulik, Raumoco, Loes, and Tono—were all operational and functioning. Evidence of activity included regular meetings to coordinate and address watershed-related issues and plans. These councils played an important role in developing both watershed agricultural development plans and sustainable agricultural development plans. The active participation of farmer groups in decision-making reflects the collaborative and inclusive nature of the approach, strengthening local ownership and the relevance of the plans produced.

4.1.2. Watershed Agriculture Development Plans (WADPs) prepared and in use

The SAPIP/MALFF program aimed to establish and operationalize watershed management plans across seven municipalities: Lautem, Ainaro, Bobonaro, Covalima, Liquica, Ermera, and Oecusse. KIIs with households carried out across six municipalities (Ainaro, Bobonaro, Ermera, Covalima, Liquica, and Oecusse) households confirmed that their watershed councils were functional.

These councils engaged farmer groups in a variety of management tasks, including coordinating and facilitating meetings, reviewing progress, identifying implementation challenges, and evaluating results. They also played a central role in preparing Watershed Agricultural Development Plans (WADPs) and Sustainable Community Agricultural Development Plans, ensuring that these plans reflect local priorities and involved active community participation.

4.1.3. Sustainable Community Agricultural Development Plans (WADPs) prepared and in use

The Intermediate Results Report (2024) indicates that approximately 44 Sustainable Community Agricultural Development Plans are currently in place—exceeding SAPIP/MALFF's original target of around 40 plans. Focus Group Discussion (FGD) data from six municipalities revealed that farmer groups reported improvements in agricultural productivity across key crops such as rice, maize, horticulture, and livestock. Farmers also noted that support from SAPIP/MALFF and MALFF interventions had positively influenced their cultivation practices, particularly in the adoption of improved agricultural technologies.

Evidence of the effectiveness of these development plans is reflected in the frequency of group meetings, participatory decision-making processes, and the collaborative implementation of agricultural activities. The active involvement of local authorities and community leaders has also played a significant role in monitoring and supporting farmers' activities, thereby contributing to the sustainability of the plans. This structured, community-led approach provides a cohesive framework for farmer groups and helps ensure that all members benefit from coordinated efforts within SAPIP/MALFF's targeted watersheds.

4.2 COMPONENT 2: Smallholder Organization, Advisory Support and Training

Recognizing that knowledge and organization are critical enablers of improved productivity, SAPIP/MALFF worked to strengthen smallholder capacities through farmer group formation, targeted training, and access to advisory services. The project prioritized practical farmer-centered training on topics such as climate-smart agriculture (CSA), sustainable land use, post-harvest handling, food safety, nutrition and financial literacy (e.g., savings and loan practices). A combination of Farmer Field Schools (FFS) and extension support—delivered increasingly through local NGO partners—enabled widespread outreach across SAPIP/MALFF municipalities. This component also supported the establishment of linkages between farmers and municipal extension structures, while piloting the use of small-scale technologies such as mini-tillers, composting tools, and biochar production units.

4.2.1. Targeted Clients who are members of an Association (%) Male and Female

The recent endline survey conducted by D-Eight across SAPIP/MALFF's seven target municipalities, involving 522 households, revealed a substantial increase in household participation in farmer groups and associations. The data highlights the SAPIP/MALFF project's significant contribution to strengthening community engagement and promoting inclusive participation in organized agricultural activities.

Overall, 44% of surveyed households (231 in total) reported participating in a farmer group or association in the past 12 months—more than doubling the 21% participation rate (108 households) recorded prior to SAPIP/MALFF's implementation. This represents a 23 percentage point increase, underscoring the project's success in fostering collective action and knowledge exchange among farmers.

	Past 12 Month	Before SAPIP
PARTICIPATION IN FARMERS' GROUP	44%	21%
NUMBER OF HH	231	108

Table 1: Association Membership Percentages

Importantly, the survey applied a gender lens to analyze participation dynamics:

- Male participation in farmer groups increased from 15% pre-SAPIP/MALFF to 29% in the post-SAPIP/MALFF period.
- Female participation rose from just 5% pre-SAPIP/MALFF to 15% during the same period.

This reflects a threefold increase in women's involvement—an encouraging sign of SAPIP/MALFF's progress in promoting gender inclusion and empowering women in agriculture. The project appears to have created a more enabling environment for female farmers, allowing them to take a more active role in agricultural decision-making and group-based initiatives.

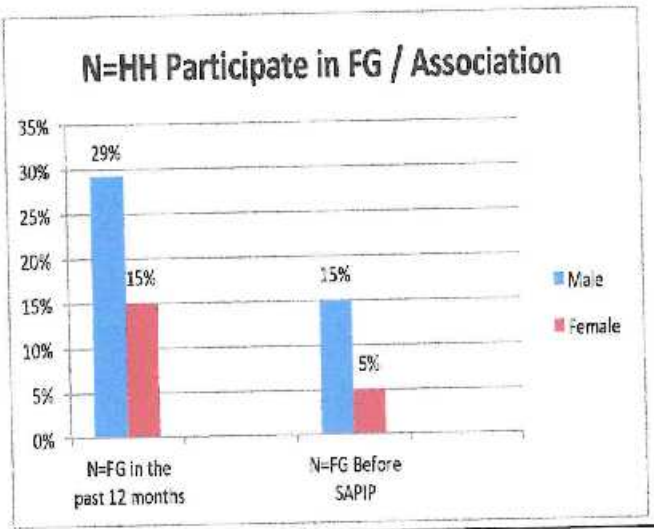


Figure 1: Household Participation in Farmer Groups / Associations.
Note: Male respondents are represented in blue; female respondents in red.

The endline data collected by D-Eight provides contentious evidence of SAPIP/MALFF's influence on farmer group participation. While there has been an increase in membership among both men and women—particularly women—this indicates stronger community collaboration, improved access to agricultural support, and a more inclusive approach to local development planning. However, the project did not met its target of 100% participation as previously indicated.

An analysis of the data reveals a significant discrepancy between the SAPIP progress report and findings from the endline survey regarding farmer participation in associations. The progress report presents a very high level of achievement, particularly for female participation, which it claims has already surpassed the end target. Specifically, it reports:

- 5,323 males out of a total of 11,550 households (as per SAPIP end target indicated) are currently participating in associations.
- 5,323 females participating, exceeding the end target of 4,950.

By contrast, the endline survey shows that only 44% of farmer households have participated in associations overall, broken down as:

- 29% male
- 15% female

This suggests a significant overestimation of participation in the progress report and a potential misrepresentation of the project's actual reach and impact. While the progress data implies the project has nearly reached its 100% target, the survey finds show it remains far from this goal.

The mismatch between the two data sources could stem from several issues in data collection and reporting. Possible explanations include:

- **Different definitions of "participation":** The progress report may include anyone who attended a meeting or registered with a group, while the survey measured only active or sustained involvement.
- **Clerical errors or double-counting:** The identical figures for male and female participation (5,323) in the progress report appear unlikely to be coincidental.
- **Variations in methodology:** The survey applied a more rigorous sampling method, whereas the progress report could have relied on self-reported data from field officers/extensionists, who may be incentivized to present positive results.

To improve accuracy and ensure future data reliability, the SAPIP/MALFF team should consider:

- **Conducting a joint data verification exercise** with both project staff and independent surveyors to reconcile figures, review collection tools, and standardize definitions of "participation".
- **Randomly re-surveying a sample household** to confirm participation status, and auditing the project's management information system to identify potential data entry errors or systemic issues.

By implementing these measures, SAPIP can ensure that future reports accurately reflect the project's progress and guide decision-making based on reliable and verified data.

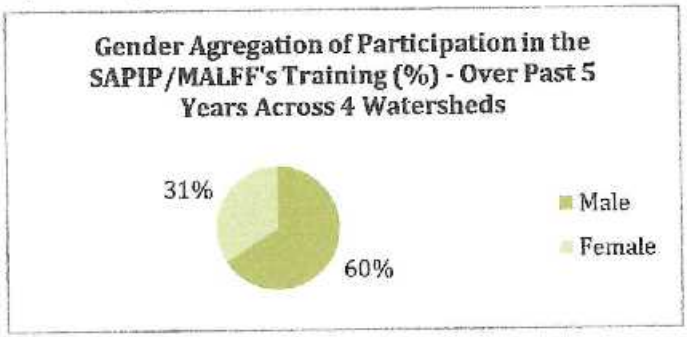
4.2.2. *Clients Days of Training Provided (number) – (Core) Male and Female*

The SAPIP/MALFF project set an end target of 528,000 client days of training for farmer groups, with 158,400 days specifically targeted for female participants. According to the project's progress report, total client training days have reached 94% overall target.

However, the endline survey conducted by D-Eight found that 91% of respondents reported participating in training activities over the past five years, while 9% reported no participation. For

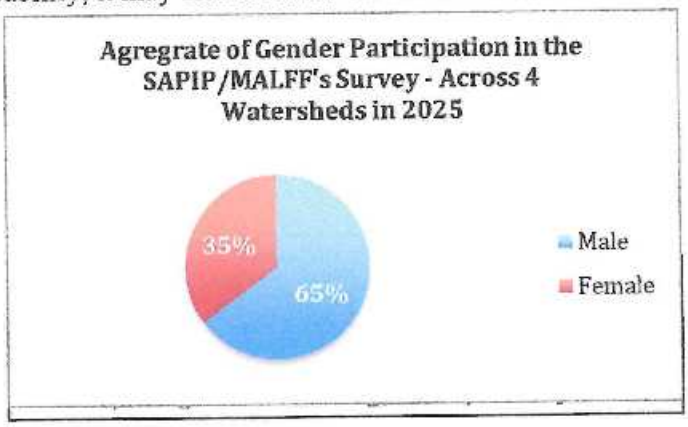
women, the SAPIP/MALFF progress report indicates that female client training days exceeded the program's end target by over 17%.

Of the total training days delivered across 12 agricultural topics, 65% were attended by male (1,314 days), and 35% by women (702 days). Within that 35% female share, only about 31% of women reported having participated in training over the past five years.



This gap suggests that while SAPIP/MALFF made significant progress in reaching both men and women, further efforts are needed to address underlying social, cultural, or logistical barriers that may limit women's access to training opportunities.

Focus Group Discussions (FGDs) further highlighted that farmer group participation in trainings was generally limited to two individuals per group. While this model may enhance manageability, it may also limit the effective dissemination of knowledge to the broader group membership. Without robust mechanisms for internal sharing and follow-up, the full benefits of training risk being diluted at the community level.



The high rate of training participation reflects SAPIP/MALFF's success in engaging communities and building local capacity. However, the gender gap in attendance and limits on group representation highlight opportunities to improve inclusivity and ensure broader knowledge transfer. In addition, the discrepancies between participation figures in the SAPIP/MALFF progress reports and those found in the survey point to a need for the program team to review and strengthen its data collection mechanisms and ensure greater accuracy. Addressing these issues will be essential to enhancing the sustainability and long-term impact of capacity building efforts in future programs.

4.2.3. *Clients Days of Training Provided by Category of Training (number)*

Over the past few years, SAPIP/MALFF has implemented a strategic and sustained approach to agricultural training, engaging key partners to strengthen the capacities of both male and female farmers. Training topics were aligned with SAPIP/MALFF's core outcome areas—including productivity enhancement, post-harvest handling, improved management practices, nutrition, and agribusiness development. The SAPIP/MALFF's project targeted to reach 528,000 of clients days of training, by the end of the project.

Program	End Target	Actual Result
Client days of training provided (number)	528,000	498,181

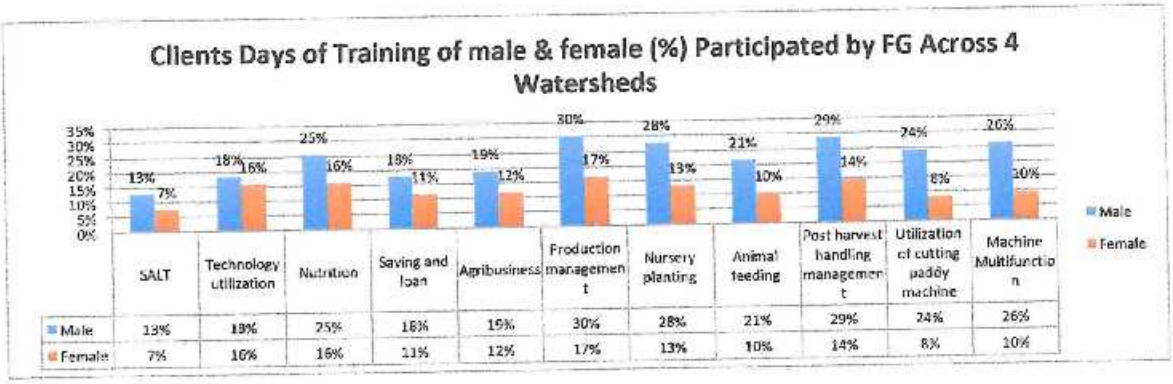
Table 2: Client Training Days

a) Productivity

Training related to productivity consistently attracted high participation. On average, 29 farmers attended each productivity-related training, reflecting a significant increase compared to the midline assessment, when training frequency was limited or lacking altogether.

Figure 4: Clients Days of Training (see image below) shows that the most attended training types included:

- Production Management (30% men, 17% women)
- Post-Harvest Handling Management (29% men, 14% women)
- Nursery Planting (28% men, 13% women)



However, across all ten training types, male participation consistently outnumbered female participation. The most pronounced gender gaps were in:

- Utilization of Cutting Paddy Machine (24% men vs. 8% women)
- Machine Multifunction (26% men vs. 10% women)

This disparity suggests men were more likely to participate in trainings involving mechanization, while women were more engaged in areas like nutrition and technology utilization. For example:

- Nutrition training involved 25% men and 16% women
- Technology Utilization reached 18% men and 16% women

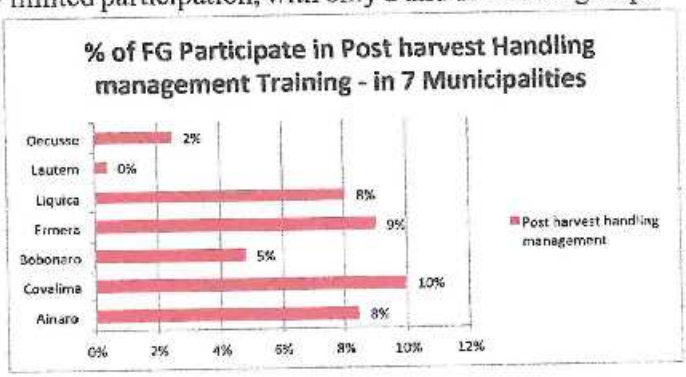
These figures reflect both a willingness among women to adopt new practices and the ongoing need for targeted strategies to improve gender equity in training access. FGDs and survey feedback confirm that farmers have increasingly adopted modern techniques, such as the use of multifunction paddy machines, resulting in time savings, reduced labour demands, and improved cost efficiency.

b) Post-Harvest Handling

Figure 5: Percentage of FG Participating in Post-Harvest Handling Training (below), indicates widespread uptake, especially in:

- Covalima (52 FGs)
- Ermera (47 FGs)
- Ainaro (44 FGs)

Conversely, Lautem and Oecusse recorded very limited participation, with only 2 and 13 farmer groups respectively. The variation highlights the importance of tailoring outreach efforts to municipalities with historically lower engagement.

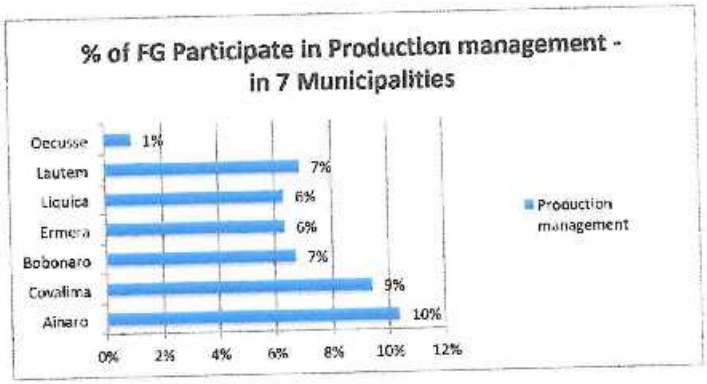


c) Management Practices

Figure 6: Percentage of FG Participating in Production Management Training (below) demonstrated strong engagement, with the highest participation in:

- Ainaro (54 FGs)
- Covalima (49 FGs)

Again, Oecusse lagged behind with only 5 participating groups, indicating potential structural or logistical barriers that may need to be addressed in future interventions.



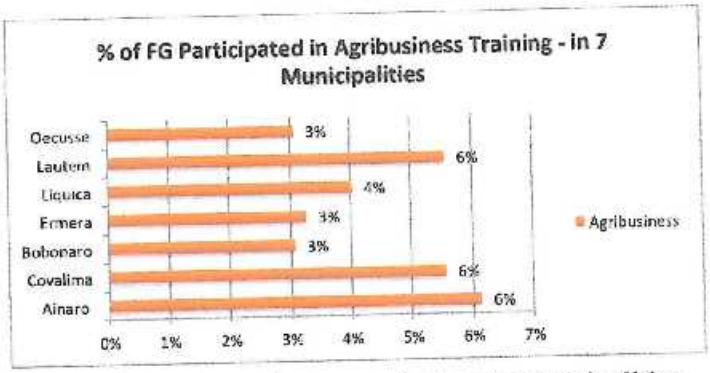
d) Agribusiness

Figure 7: Number of FG Participated in Agribusiness Training

Participation in Agribusiness Training was most prominent in:

- Ainaro (32 FGs)
- Lautem and Covalima (29 FGs each)

The training contributed to increased awareness of market access, income diversification, and small enterprise development. However, a gender lens shows this domain, too, remains male-dominated, reflecting a broader trend in income-generating interventions across rural areas.



Overall, SAPIP/MALFF's training activities have significantly contributed to building farmer capacity across its target municipalities. While participation rates have increased, particularly in productivity, post-harvest, and management training areas, persistent gender gaps and municipality-level disparities suggest the need for more inclusive and targeted programming.

Moving forward, SAPIP/MALFF and its partners should consider:

- Increasing outreach and facilitation support in underrepresented areas like Oecusse and Lautem;
- Expanding women-focused training modules and reducing structural barriers to female participation;
- Promoting farmer-to-farmer knowledge sharing within groups to mitigate the limitations posed by participant caps per training session.

These efforts will further enhance the sustainability and inclusiveness of SAPIP/MALFF's training outcomes.

4.3. COMPONENT 3: Sustainable Watershed/sub-watershed Management and Support to Farmers Groups

SAPIP/MALFF introduced a small grants mechanism to support farmer-led adoption of improved agricultural practices and technologies. These grants enabled groups to co-finance investments in land preparation, soil fertility management, climate-resilient cropping systems, and post-harvest improvements. Emphasis was placed on participatory group proposals, local leadership, and knowledge sharing within communities. The grants were complemented by ongoing technical support and monitoring from municipal teams and implementing partners. This component aimed to translate training and planning into action on the ground, strengthening food security, building household resilience, and contributing to reduced land degradation across SAPIP/MALFF's watersheds.

4.3.1. Farmers Adopting Improved Land Management Practices (number)

The SAPIP/MALFF intervention has equipped farmer groups with a comprehensive land management adoption system. This support included capacity-building training in the use of hand tractors, organic compost production, liquid fertilizer application, and Sloping Agricultural Land Technology (SALT). Additional training topics covered land preparation and weeding techniques (dac), as well as the use of tunnel/greenhouse equipment.

Land Management Practices Adoption Rates by Individuals		
End Target	SAPIP's Midline Survey Result	Endline Survey Result
16,500	1,811 (11%)	59%

Table 3: Land Management Practices Adoption Rates

The effectiveness of the Land Management Project (LMP) is assessed using two key indicators: (1) the rate of adoption over the past 12 months, and (2) the adoption rate prior to SAPIP/MALFF's implementation. The end target of SAPIP/MALFF project for the FG adoption of improved LMP is 16,500. Based on the midline data (2022), indicates that at around 11% of FG adopted the improved LMP. Result from the end-line survey shows an LMP adoption by 59% farmers, a significant improvement of 48% compared to the midline survey result.

a. Adoption of LMP in the Past 12 Months

Survey results from 522 farmer group members across the four target watersheds—Tono, Loes, Bee Lulik, and Raumoco—indicate strong uptake of improved land management practices (LMP) over the past 12 months. The most widely adopted practice was the **utilization of hand tractors**, reported by **310 respondents**, or close to **60%** of all participants.

Organic composting and **liquid fertilizer application** followed, with close to half of the adoption rates, sharing 25% and 20% respectively. Composting had a slight edge, adopted by **131 households**, compared to **107 households** using liquid fertilizer.

Adoption of other land management techniques was lower:

- **SALT (Sloping Agricultural Land Technology):** 12% of households
- **Land preparation/weeding (dac):** 9% of households
- **Tunnel or greenhouse usage:** just 2% of households—the lowest adoption rate recorded.

These findings suggest a strong preference for mechanization and organic inputs among SAPIP/MALFF beneficiaries, while more specialized techniques like greenhouse farming remain limited in uptake.

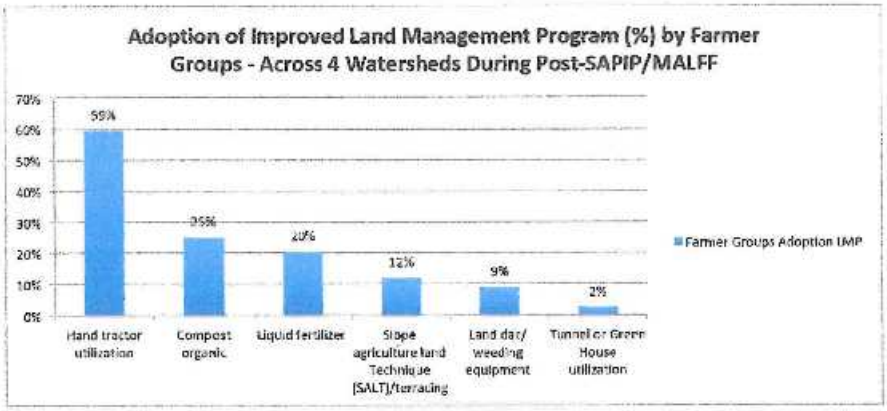


Figure 8: Household Adoption of LMP – Over the Past 12 Months

b. Adoption of LMP by the Control Group

Among the **200 respondents** in the control group—who did not receive direct SAPIP/MALFF training—there was a noticeably lower and more uneven adoption of improved land management practices.

The most widely adopted practice in this group was again the **use of hand tractors**, with **20%** of respondents reporting adoption. This was followed by:

- **Compost organic methods:** 7%
- **Liquid fertilizer application:** 6%

Adoption of the remaining practices was minimal:

- **SALT:** 12%
- **Land/dac weeding equipment:** 9%
- **Tunnel/greenhouse structures:** 2% (only one household)

These results highlight a clear disparity in the uptake of modern agricultural techniques, where the treatment group's adoptions almost triple the number compared to control groups in all six (6) LMPs. While some mechanized practices like hand tractor use have gained broader appeal, the adoption of more technical or resource-intensive practices—such as greenhouse farming—remains negligible without targeted support and training.

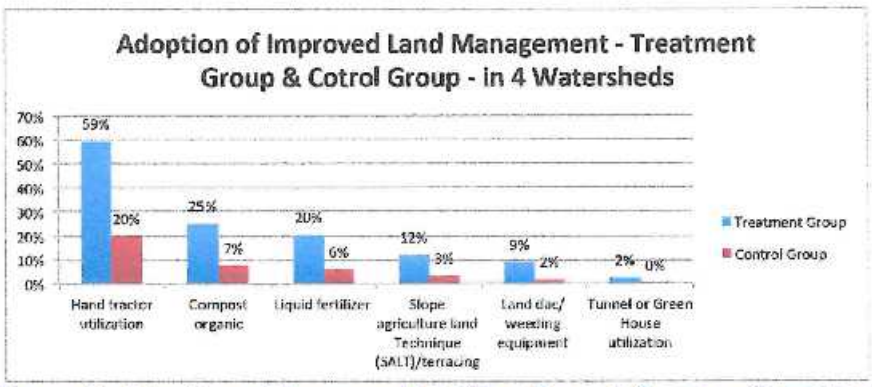


Figure 9: Adoption of Improved LMP by Control Group – Over the Past 12 Months

4.3.2. Female Farmers Adopting Improved Land Management Practices (number)

Female Farmers (individual) adopting improved Land Management Practices		
End Target	Midline Result	Endline Survey Result
4,950	623 (13%)	20%

Table 4: Female Farmers Land Management Practices Adoption Rates

The midline results for female adoption of improved LMP recorded at 13% from the end-line target of 4,950. The end-line survey indicates 7% increase from the midline and recorded at 20% of the adoption efforts.

The graph presented in Figure 9 (below) illustrates the percentage of female adoption of various improved LMPs under the SAPIP/MALFF project over the past 12 months. **"Hand tractor utilization"** emerged as the most widely adopted practice among women, with a notable 20% adoption rate. This suggests strong female engagement in mechanized agricultural activities, which may contribute to improved efficiency and productivity in land preparation and cultivation within SAPIP/MALFF-supported areas. Other notable practices include:

- Compost organic methods: 8%
- Liquid fertilizer application: 6%

These figures reflect moderate female participation in sustainable soil fertility management techniques. However, adoption rates for other practices remain relatively low:

- SALT (Sloping Agricultural Land Technology)/Terracing: 4%
- Land preparation and weeding equipment (dac): 3%
- Tunnel or greenhouse utilization: 1%

These lower adoption rates may indicate limited access, lower exposure, or gender-specific constraints related to more specialized or resource-intensive techniques. The findings underscore the need for targeted support and inclusive extension strategies to ensure that women farmers can fully benefit from the full range of LMPs promoted under SAPIP/MALFF.

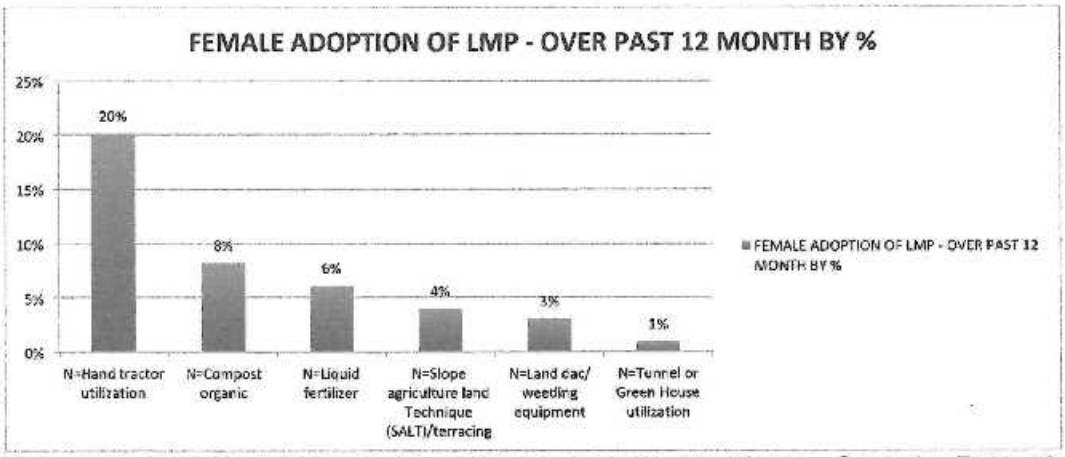


Figure 10: Female Adoption of Land Management Practices – Over the Past 12 Months (%)

4.3.3. Client who has Adopted an Improved Agricultural Technology Being Promoted by the Project

a. Adoption of Improved Agricultural Technologies

The SAPIP/MALFF program introduced a variety of improved agricultural technologies to farmer groups across the four targeted watersheds—Bee Lulik, Loes, Raumoco, and Tono, these include milling machines, threshing machines, coffee milling machines, coconut oil presses, and pellet machines. This practical hands-on approach significantly strengthened the operational capacity of farmer groups, particularly in post-harvest processing, and has contributed to increased productivity over the past 12 months.

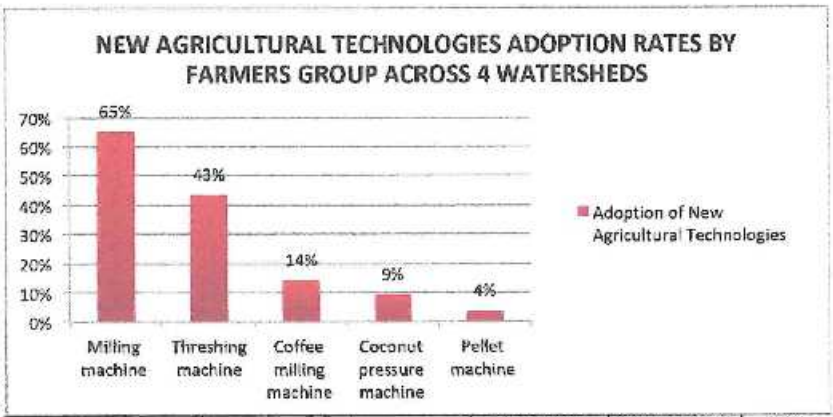
End Target	Midline Survey	End-line Survey Result
16,500	1061 (6.4%)	65%

Table 5: Adoption Trends of improved Agricultural Technologies

The midline survey has registered only a 6.4% of improved agricultural technologies adoption rate out of the end target of 16,500 individuals. The end-line survey, however, shows a significantly high adoption rate by farmer groups with a 65%, a significantly tenfold increase compared to the midline survey data.

Survey findings recorded a total of 708 days of participation across the five technology types. Milling machines were the most widely adopted, used by 65% of farmer groups followed by threshing machines at 43%.

The high uptake of these two technologies indicates that post-harvest processing for staple crops such as rice and maize is a clear priority for farmer groups. Their widespread use highlights both the relevance of these technologies and SAPIP/MALFF's success in improving access and providing training.



	Milling machine	Threshing machine	Coffee milling machine	Coconut pressure machine	Pellet machine
Adoption of New Agricultural Technologies	65%	43%	14%	9%	4%

Figure 11: Adoption of New Agricultural Technologies

Other technologies saw lower adoption levels:

- Coffee milling machine: 14% adoptions
- Coconut pressure machine: 9% adoptions
- Pellet machine: 4% adoptions.

These lower rates may reflect a combination of factors, including the more specialized nature of these technologies, lower overall demand, or their recent introduction—meaning that adoption may increase over time as awareness and access improve. The data indicates that farmers prioritize technologies directly linked to the processing of high-volume staple crops, while more niche equipment is yet to gain traction.

b. Comparison with Control Group

Farmer groups in the control group, who did not receive direct SAPIP/MALFF support but were surveyed during the endline assessment, also reported some exposure to agricultural technology training. However, adoption rates were significantly lower.

The only technologies with notable adoption among the control group were:

- Threshing machine: 17% of participants.
- Milling machine: 12% of participants.

In contrast, coffee milling, coconut pressure, and pellet machines recorded 2% and lower number of participants each, indicating very limited uptake. This highlights the added value of SAPIP/MALFF's targeted intervention in driving broader adoption of relevant technologies.

The data clearly illustrates that SAPIP/MALFF's introduction of agricultural technologies has had a substantial impact on post-harvest processing capacity among participating farmer groups. The strong preference for staple crop processing equipment, particularly milling and threshing machines, underscores the importance of aligning technology support with farmer priorities. To further improve adoption rates for more specialized equipment, SAPIP/MALFF and its partners may consider enhanced awareness-raising, demonstration activities, and tailored support for groups engaged in value chains such as coffee and livestock feed production.

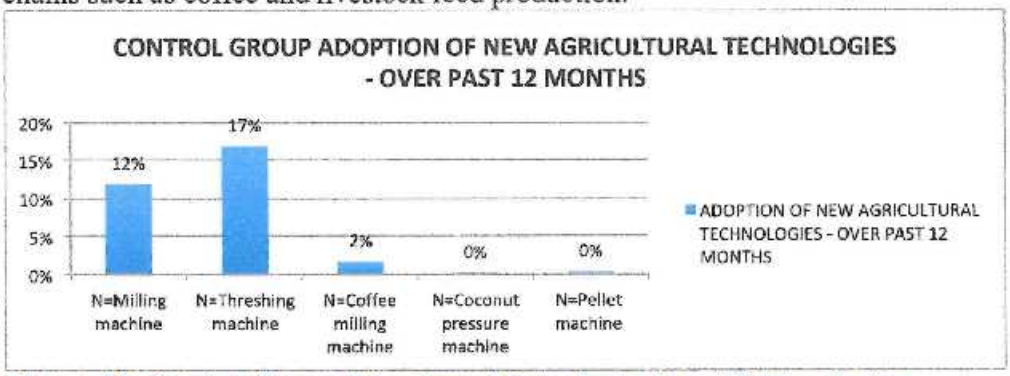


Figure 12: Control Group Adoption of New Agricultural Technologies

4.3.4. Female Client who has Adopted an Improved Agricultural Technology Being Promoted by the Project (number, custom breakdown)

In the past 12 months, 266 female farmers across the four SAPIP/MALFF-targeted watersheds—Bee Lulik, Loes, Raumoco, and Tono—adopted various improved agricultural technologies aimed at enhancing six key farming practices. The data reflects a clear trend: female farmers are increasingly integrating mechanization into their post-harvest processes, which likely contributes to gains in both efficiency and productivity.

The adoption patterns show a strong preference for technologies that support the processing of staple crops, particularly rice and maize:

- Milling machine: Adopted by 47% of female farmers, making it the most widely used technology. This indicates a high demand for efficient grain processing tools.
- Threshing machine: Adopted by 29%, reinforcing the priority placed on staple crop processing.
- Coffee milling machine: Adopted by 15%, highlighting its relevance in regions where coffee remains a key cash crop.

Less commonly adopted, but still noteworthy:

- Coconut pressure machine: 8% adoption, suggesting moderate use in coconut-producing areas.
- Pellet machine: 1% adoption, indicating minimal uptake—possibly due to the specialized nature of the technology or limited awareness and access.

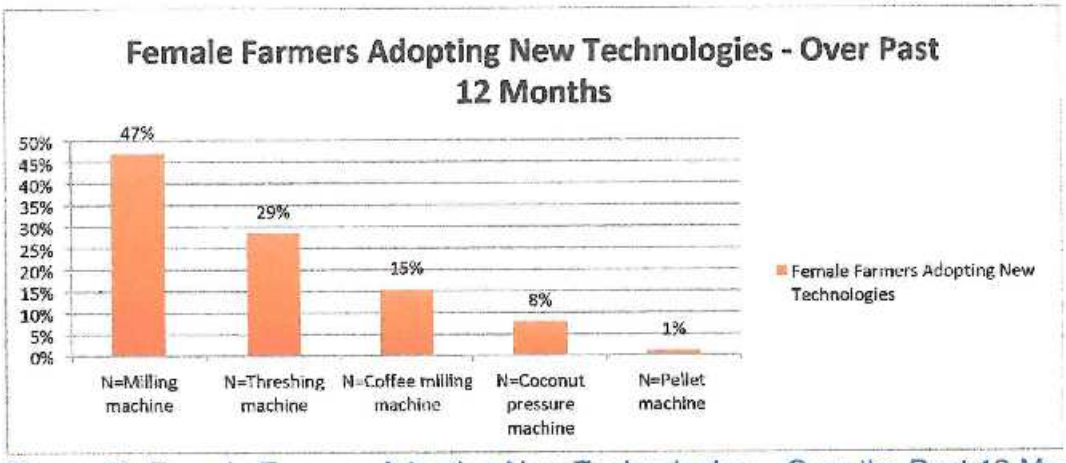


Figure 13: Female Farmers Adopting New Technologies – Over the Past 12 Months

The data clearly illustrates that female farmers are actively adopting technologies that reduce manual labor and increase efficiency, especially in post-harvest operations. The high adoption rates for milling and threshing machines reflect their central role in processing widely grown crops and reducing time and labor burdens—challenges that disproportionately affect women in agriculture.

The lower uptake of specialized equipment such as coconut pressure and pellet machines may be attributed to several factors:

- Limited relevance to local crop production
- Higher cost or maintenance complexity
- Insufficient exposure or training on usage

These findings underscore the importance of:

- Promoting access to core technologies that directly address the everyday needs of women farmers
- Tailoring extension efforts to increase awareness and usability of underutilized technologies
- Designing inclusive training and financing mechanisms to overcome gender-specific barriers to technology adoption

4.4. COMPONENT 4: Strengthening MALF's Services, Planning, Programming, Coordination, Monitoring and Evaluation Functions

Sustainable impact requires strong institutions. Under this component, SAPIP/MALFF invested in the capacity of MALFF and the TLARDI to deliver more effective, evidence-based, and responsible agricultural services. Support included infrastructure rehabilitation at research centers in Darasula, Loes, and Betano; the development of TLARDI's statute and strategic framework; and efforts to improve coordination between national and municipal agriculture services. SAPIP/MALFF also supported the roll-out of safeguards training and grievance redress mechanisms, expanded monitoring and evaluation tools (e.g., through the use of Kobo Toolbox), and worked to strengthen the Ministry's planning and service delivery systems. This component was essential to ensuring institutional ownership and long-term continuity beyond the project's close.

4.4.1. M&E System of MALF is developed and Functional

The SAPIP/MALFF Project Management Unit (PMU) has been working closely with the Monitoring and Evaluation (M&E) Unit of the Ministry of Agriculture, Livestock, Forestry, and Fisheries (MALFF) to establish a Monitoring Infrastructure System. This system is designed to strengthen MALFF's capacity for data management, resource allocation, and utilization—ultimately supporting more effective planning, coordination, and budgeting aligned with the Ministry's strategic objectives.

The development of MALFF's M&E system was contracted to the Food and Agriculture Organization (FAO) and is currently in progress. During the reporting period, efforts focused on gathering input from MALFF leadership and staff to build awareness and understanding of M&E systems and their functions within the Ministry.

Although the initial contract has ended, an extension has been granted following a request for additional financial support. FAO has formally requested an additional US$200,000 from SAPIP/MALFF to complete the remaining activities planned for the extension period. The Minister of Agriculture and Fisheries has approved this request, and FAO is now in the process of finalizing the detailed activity plan for submission to the project team.

4.5 Project Development Objectives (PDO) Indicators

The SAPIP/MALFF Project was designed with three core Project Development Objectives (PDO) indicators, each aligned with the overarching goal of improving agricultural productivity and market engagement among smallholder farmers in Timor-Leste. These indicators served as key benchmarks for measuring the project's effectiveness, tracking progress from baseline to midline and ultimately to endline.

The endline assessment reviewed each PDO indicator using a combination of quantitative survey data and qualitative field insights. Findings reflect the cumulative results of interventions across the four project components, as well as contextual factors that shaped implementation.

This section presents progress against each PDO indicators, highlighting changes over time, regional variations, and remaining gaps. Where possible, comparisons are drawn with baseline and midline values, and the condition of prior (control group) and post SAPIP/MALFF/MALFF interventions, to assess the trajectory of improvement. The indicators include:

1. Increase in crop productivity (measured in yield per hectare)
2. Reduction in post-harvest losses for key commodities
3. Increase in marketed agricultural production (% of output sold)

Collectively, these indicators offer a snapshot of SAPIP/MALFF's contribution to a more productive, resilient, and market-oriented smallholder farming system while also identifying areas requiring continued investment or policy attention.

4.5.1. Productivity (PDO1)

The updated productivity data reinforces the strong impact of SAPIP/MALFF in driving efficiency and production for both paddy and maize. While paddy production gains are widespread, maize presents a mixed picture—improved yields despite shrinking land use, and treatment groups underperforming in volume compared to the previous pre-SAPIP/MALFF's period.

1. Crop Productivity Improvements (Paddy & Maize)
SAPIP/MALFF has led to substantial improvements in crop productivity, particularly for paddy and maize in the four watersheds (Bee Lulik, Loes, Raumoco, Tono). In addition, the data will also provide a comparison of productivity during pre-SAPIP/MALFF's intervention and post-SAPIP/MALFF's intervention. It compares the productivity in tons / hectares for each watershed, and how the productivity changes occurred/differed across both periods. The SAPIP/MALFF's end target of 20% is used to measure the performance of farmer groups' productivity in paddy and maize from all the four watersheds. According to the updated productivity data tables of both crops are detailed in the following table:

PRODUCTIVITY	Pre-SAPIP (ton/ha)	Post-SAPIP (ton/ha)	% CHANGED	End Target (%)
PADDY	1.85	2.6	73%	20%
MAIZE	0.6	0.8	17%	
TOTAL AVERAGE	1.22	1.67	45%	

Table 6: Productivity Pre/Post SAPIP/MALFF

The SAPIP program appears to have had a significant positive impact on agricultural productivity for both paddy and maize across the four watersheds. Pre-SAPIP, paddy productivity was 1.85 tons per hectare, which saw a remarkable increase to 2.6 tons per hectare post-SAPIP. This represents a substantial 73% change, demonstrating the program's effectiveness in boosting rice yield. Similarly, maize productivity also improved, rising from 0.6 tons per hectare to 0.8 tons per hectare, which is a 17% increase. While the percentage change for maize is less dramatic than for paddy, it still shows a positive trend. The overall average productivity for both crops increased from 1.22 tons per hectare to 1.67 tons per hectare, a 45% change.

The data also indicates that the SAPIP/MALFF's program was highly successful in meeting and exceeding its targets, in both productions. The end target for productivity was set to 20% increase, and the program achieved an average of 45% change. This puts the program to exceed the end target of both crops, by 25% difference over the project end target.

The total average productivity across both crops rose by 45%, highlighting the program's overall success, exceeding the end target of SAPIP/MALFF project 20%. These gains are attributed to:

- Use of organic compost and improved planting techniques
- Planting rotation systems
- Access to multifunctional planting and cutting machinery
- Modernized irrigation and soil preservation techniques (e.g., tree planting to prevent erosion)

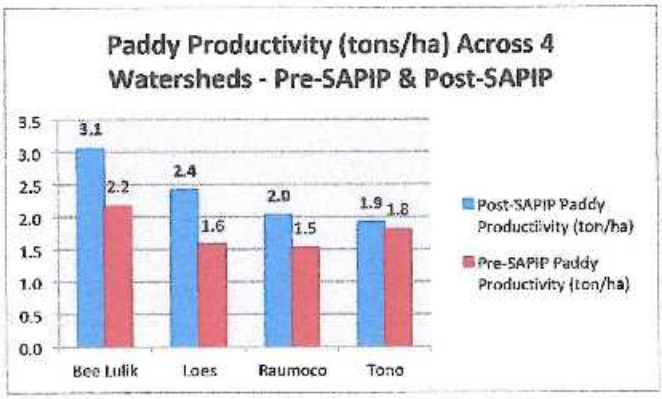


Figure 14. – Paddy Productivity in 4 watersheds visually confirms a substantial productivity gain from 1.85 ton/ha to 2.6 ton/ha. Despite a dramatic increase in average tons/ha in all four watersheds, Tono watershed shows only a slight change in its productivity.

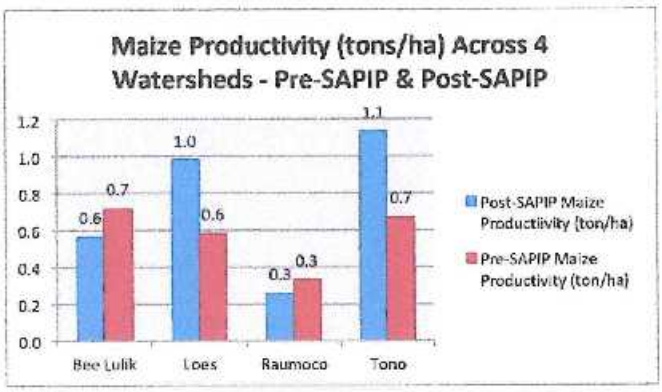


Figure 15. – Maize Productivity in 4 watersheds indicates Bee Lulik and Raumoco drop in ton/ha for its maize productivity. Locs and Tono show otherwise as decline in an increase of maize productivity. Locs and Tono contributes majority in the productivity of at least 50%.

2. Crop Area and Yield Gains (Land Use Change)

The average paddy land area per farmer decreased from 3.73 hectares pre-SAPIP to 3.58 hectares post-SAPIP, indicating a slight overall reduction in land used for paddy per farmer. However, this average is likely skewed by the drastic change in the Tono watershed.

	Pre-SAPIP	Post-SAPIP
WATERSHED	Paddy - Land Area (ha) /Farmer	Paddy - Land Area (ha) / Farmer
Bee Lulik	1	1.05
Loes	1.3	1.4
Raumoco	1.05	1.09
Tono	0.38	0.04
AVERAGE	**3.73**	**3.58**

Table 7. Land Area used for Paddy Plantation – Pre & Post-SAPIP/MALFF

Across the four watersheds:

- **Bee Lulik:** Indicates a slight increase from 1 hectare to 1.05 hectares, representing a positive change.
- **Loes:** Experienced a positive increase, with the land area per farmer growing from 1.3 hectares to 1.4 hectares.
- **Raumoco:** Observed a small increase from 1.05 hectares to 1.09 hectares.
- **Tono:** Experienced the most significant and negative change. The paddy land area per farmer plummeted from 0.38 hectares to a mere 0.04 hectares. This drastic decrease heavily influences the overall average of land hectare per farmer.

Despite an overall increase in Bee Lulik, Loes, and Raumoco watersheds, land area per-hectare per – farmer, Tono watershed experienced a severe and concerning decrease. Further analysis would be needed to understand the specific reasons behind the dramatic change in Tono and to determine whether it is a direct consequence of the SAPIP/MALFF's program or other external factors.

Meanwhile, average maize land area used per farmer shows a slight decrease from 2.40 hectares pre-SAPIP to 2.33 hectares post-SAPIP. This indicates a minor overall reduction in maize cultivation land per farmer.

	Pre-SAPIP	Post-SAPIP
WATERSHED	Maize - Land Area (ha)/Farmer	Maize - Land Area (ha)/Farmer
Bee Lulik	0.44	0.44
Loes	0.74	0.71
Raumoco	0.72	0.73
Tono	0.50	0.45
AVERAGE	**2.40**	**2.33**

Table 8. Land Area used for Maize Plantation – Pre & Post-SAPIP/MALFF

- **Bee Lulik:** Shown a stable at 0.44 hectares per farmer both before and after the SAPIP program.
- **Loes:** A slight decreased in maize land area per farmer, from 0.74 hectares to 0.71 hectares.
- **Raumoco:** Experienced a small increase, from 0.72 hectares to 0.73 hectares.
- **Tono:** Experienced similar trends as in paddy, with a decrease in maize land area, from 0.50 hectares to 0.45 hectares.

The SAPIP program's impact on maize land area per farmer is minimal and inconsistent across the four watersheds. The overall average change is a negligible decrease. While Bee Lulik saw no change, Loes and Tono experienced small reductions, and Raumoco had a minor increase. This suggests that the program's primary focus may not have been on changing maize land allocation, or that its effects on this crop were not substantial. The small changes could be due to a variety of factors, including

shifts in focus to other agricultural products, or minor changes in farm management practices that were not directly caused by the SAPIP program.

6. Summary Table – Productivity Gains (% Change)

Crop	Productivity Before (tons/ha)	Productivity After (tons/ha)	% Change
Paddy	1.85	2.6	+73%
Maize	0.6	0.8	+17%

Table 9. Productivity Gains for Paddy & Maize – Before and after SAPIP/MALFF

The table 9 shows a significant increase in productivity for both paddy and maize. Paddy productivity rose from 1.85 tons per hectare before SAPIP/MALFF to 2.6 tons per hectare after SAPIP/MALFF, representing a substantial 73% increase. Similarly, maize productivity improved from 0.6 tons per hectare to 0.8 tons per hectare, which is a 17% increase.



4.5.2. Post-harvest Loses (PDO2)

Paddy & Maize

SAPIP/MALFF interventions have significantly reduced post-harvest losses for both paddy and maize across target watersheds. KII indicates that farmers now combine traditional storage and handling methods (e.g., rice bags, metal drums) with modern technologies such as tarpaulins, silos, and threshing machines. These approaches have enhanced grain preservation by limiting exposure to pests and environmental damage.

Post Harvest Losses		
	Pre-SAPIP	Post-SAPIP
Paddy	25%	5%
Maize	22%	10%
AVERAGE	24%	7%

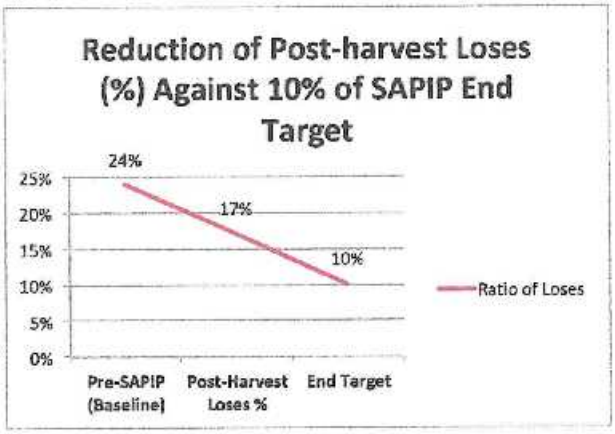
Table 10: Post Harvest Losses

A standout insight from the KII is the absence of farmer complaints about post-harvest losses, attributed largely to the efficient and timely processing enabled by SAPIP/MALFF-supported harvesting equipment.

Survey data supports this improvement:

- Paddy losses reduced from 25% to 5%
- Maize losses reduced from 22% to 10%
- Average of change from 24% pre-SAPIP reduce to 7% pos-SAPIP/MALF.
- Change in loses decreased for both crops are 17%.

The table 10 shows significantly post-harvest losses reduced for both crops paddy and maize to 17% met the project's target threshold, which is set at **10%**.



The data shows that the SAPIP/MALFF intervention has been highly effective in reducing paddy production losses across the four watersheds. In every case, as shown in the graph, post-intervention losses (blue bar) are significantly lower than pre-intervention losses (red bar). Specifically:

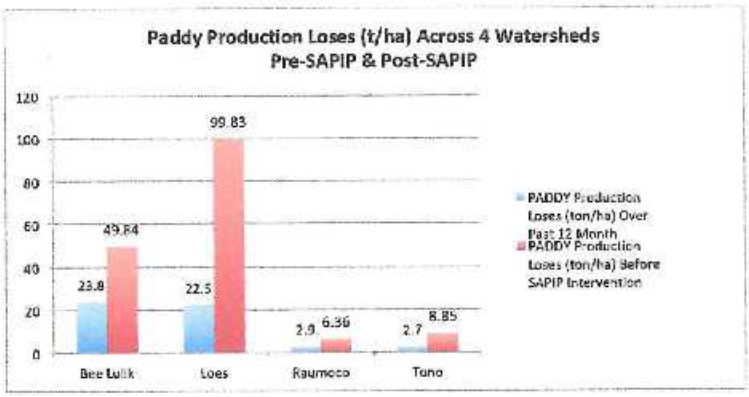


Figure 16: Reduction of Post-Harvest Losses (%) against End Target.
Figure 17: Paddy Production Losses

- Bee Lulik: Losses decreased from 49.84 t/ha before the intervention to 23.8 t/ha after.
- Loes: This watershed recorded the most dramatic reduction, with losses dropping from 99.83 t/ha to just 22.5 t/ha.
- Raumoco: Losses declined from 6.36 t/ha to 2.9 t/ha.
- Tono: Although this watershed had the lowest pre-intervention losses, it still saw a substantial reduction from 8.85 t/ha to 2.7 t/ha.

Among these, Loes watershed stands out with the most pronounced positive effect, as its initial losses were exceptionally high.

Post harvest losses for maize across the four watersheds follow a similar pattern, with clear reductions observed with pre- and post- intervention results under the SAPIP/MALFF program.

Across all four watersheds, maize production losses decreased significantly following the SAPIP intervention. In the Bee Lulik watershed, losses were reduced from 12.8 tons per hectare (t/ha) pre-SAPIP to 8.0 t/ha post-SAPIP. A positive trend is seen also in the Loes watershed, where losses dropped from 12.8 t/ha to 5.9 t/ha, indicating that the intervention was particularly effective in this region. This substantial reduction in losses suggests that the program's measures, such as improved storage methods or pest control, were highly successful for maize. The positive impact of the SAPIP intervention on maize post-harvest losses is also evident in the Raumoco and Tono watersheds. Losses in Raumoco decreased from 4.3 t/ha to 3.4 t/ha, while in Tono, they fell from 4.7 t/ha to 2.8 t/ha.

Overall, there is a strong positive impact of the SAPIP/MALFF intervention in mitigating post-harvest losses for paddy and maize. The consistent reduction in losses across all four watersheds provides strong evidence that the SAPIP program's interventions were effective in mitigating post-harvest losses for both crops.



4.5.3. Market Sales (PDO3)

1. Market Access and Sales Trends

The descriptions for market access and sales trends are utilizing sales of major crops and products in four different categories, and this include paddy, maize, vegetables, and livestock. The sales performance of farmer groups (treatment) is to be compared with non-beneficiary groups (control) as to see how sales in crops and products are differ between the two groups. The market sales ratio and change in percentage is used to triangulate data between the two groups.

Market access has improved notably for SAPIP/MALFF-supported farmers, with buyers such as Centro Logistico Nasional (CLN) and the school feeding program showing strong interest in purchasing local rice. CLN offered two pricing schemes—US$0.55/kg for farmer-delivered rice and USD$0.49/kg for rice collected by CLN. The school feeding initiative allocated USD$1.6 million for local rice procurement. These engagements mark important steps toward establishing a more stable and diversified market for farmers.

	Baseline Ratio (Control Group)						
Product Category	Total Production (ton)	Unit Sales (Q) in kg/tons	Unit Price	Total Sales	Share (% in Sales)	Baseline Ratio in Qtt Sales	Weighted Market Ratio
Paddy/Rice	323.01	34.0	$1.00	$34.03	83.3%	10.5%	9%
Maize	79.48	11.4	$0.60	$6.83	16.7%	14.3%	2.4%
TOTAL		45.4		$40.86	100.0%	24.9%	**11%**
	End-line Ratio (Treatment Group)						
Product Category	Total Production (ton)	Unit Sales (Q) in kg/tons	Unit Price/kg	Total Sales	Share (% in Sales)	End-line Ratio in Qtt Sales	Weighted Market Ratio
Paddy/Rice	1,011.45	266.59	$1.00	$266.59	90.6%	26.4%	23.9%
Maize	205.90	46.28	$0.60	$27.77	9.4%	22.5%	2.1%
TOTAL		312.86		$294.35	100.0%	48.8%	**26%**

Table 11: Market Access and Sales Trends for Rice & Maize –Pre & Post-SAPIP/MALFF

Despite these developments, endline sales of rice and maize were lower than anticipated—largely due to the timing of the assessment, when many crops had not yet been harvested or sold. To address this, the survey team revisited farmer groups to reconfirm sales data for paddy, focusing particularly on groups with higher productivity. A few groups reported successful sales to CLN, which, when factored in, increased paddy sales ratio from 8.8% pre-SAPIP to 24% post-SAPIP.

	Baseline Ratio (CONTROL GROUP)						
Product Category	Total Production (tons)	Unit Sales (kg)	Sales Price/ kg ($)	Total Sales ($)	Share (% in Sales)	Baseline Ratio in Qtt Sales	Weighted Baseline Ratio
Mustard	12.42	5.4	$0.70	$3.76	11.2%	43.3%	4.9%
Cabbage	76.7	59.5	$0.50	$29.76	88.8%	77.6%	68.9%
TOTAL		64.9		$33.52	100.0%	120.9%	**73.8%**
	End-line Ratio (TREATMENT GROUP)						
Product Category	Total Production (tons)	Unit Sales (kg)	Sales Price/kg($)	Total Sales ($)	Share (% in Sales)	End-line Ratio in Qtt Sales	Weighted End-line Ratio
Mustard	122.6	76.4	$0.70	$53.49	35.2%	62.3%	22%
Cabbage	206.2	197.2	$0.50	$98.61	64.8%	95.6%	62.0%
TOTAL		273.6		$152.10	100.0%	158.0%	**83.9%**

Table 12: Market Access and Sales Trends for Mustard & Cabbage – Pre & Post-SAPIP/MALFF

In contrast, vegetables and livestock showed strong and consistent gains:

- Vegetables: Market ratio increased from 73.8% to 83.9%
- Livestock: Increased from 19.4% to 41.0%

	Baseline Ratio (CONTROL GROUP)						
Product Category	Total Production	Unit Sales (Q)	Unit Price	Total Sales	Share (% in Sales)	Baseline Ratio in Qtt Sales	Weighted Baseline Ratio
Pig	299	72	$500.00	$36,000	28.9%	24.1%	6.9%
Cow	776	123	$600.00	$73,800	59.1%	15.9%	9.4%
Goat	252	31	$150.00	$4,650	3.7%	12.3%	0.5%
Chicken	2202	688	$15.00	$10,320	8.3%	31.2%	2.6%
TOTAL		**914**		**$124,770**	**100.0%**	**83.5%**	**19.4%**
	End-line Ratio (TREAMTMENT GROUP)						
Product Category	Total Production	Unit Sale	Unit Price	Total Sales	Share (%) in Sales	End-line Ratio in Qtt Sales	Weighted End-line Ratio
Pig	1180	650	$500.00	$325,000	42%	55%	23%
Goat	1195	250	$150.00	$37,500	5%	21%	1%
Cow	2016	580	$600.00	$348,000	45%	29%	13%
Chicken	7907	3801	$15.00	$57,015	7%	48%	4%
TOTAL		**1320**		**$767,515**	**100%**	**153%**	**41.0%**

Table 13: Market Access and Sales Trends for Livestock – Pre & Post-SAPIP/MALFF

Overall, the market sales ratio across all products rose by 15% from baseline to end-line. Despite this increase, it has yet to achieve the SAPIP/MALFF's PDO3's end target of +20%.

Product Sector	Pre-SAPIP/MALFF Market Ratio	Post SAPIP/MALFF's Market Ratio	Change/Increases	Weighted (Project Expenses)	Increase production sold
Paddy/Rice	8.8%	24%	15.1%	30.0%	5%
Maize	2.4%	2.1%	-0.3%	15.0%	0.0%
Vegetables	73.8%	83.9%	10.2%	15.0%	2%
Livestock	19.4%	41.0%	21.6%	40.0%	9%
TOTAL	**104.3%**	**151%**	**46.6%**	**100.0%**	**15%**

Table 14: Market Access and Sales Trends

Several factors that might have contributed to the low production sales and these include:

- Lack of price stabilization mechanism that prevent farmer group to sell at lower price[1].
- Rural farmers receive lower price due to high transportation costs and the middlemen markups[2].
- Limited training on market linkage and more than 70% of households could not access to market.[3]

[1] GIEWS "Country Brief The Democratic Republic Of Timor-Leste", 2024, FAO, https://reliefweb.int/report/timor-leste/giews-country-brief-timor-leste-07-june-2024

[2] World Food Programme, "Market Monitor Report", 2024 (WFP, Timor-Leste), p3, https://docs.wfp.org/api/documents/WFP-0000160135/download/?_ga=2.243062274.1850486469.1754877503-196524518.1754877503

[3] D-Eight VDA, LDA, "MAF's SAPIP Midline Assessment", 2023, (MAF, Timor-Leste), p49.

- Over 60% of rice consumed is imported, suppressing demand for local paddy, and cheaper imported maize discourage local maize sales beyond subsistence levels[4].
- Extension officers lack expertise in agribusiness and market analysis, focusing mainly on crop yields.[5]
- Lack of real-time price tracking system in place for farmers in rural watersheds and only relied on word-of-mouth from traders, leading to misinformation.[6]

2. Sales Breakdown by Product

a. Horticulture Sales Performance (Mustard & Cabbage)

Product Category	End-Line Ratio (TREATMENT GROUP.						
	Total Production (tons)	Unit Sales (kg)	Sales Price/kg($)	Total Sales ($)	Share (% in Sales)	Endline ratio in Qtt sales	Weighted Endline Ratio
Mustard	122.6	76.4	$0.70	$53.49	35.2%	62.3%	22%
Cabbage	206.2	197.2	$0.50	$98.61	64.8%	95.6%	62.0%
TOTAL		273.6		$152.10	100.0%	158.0%	83.9%

Table 15: Horticulture Products Sold

From the updated sales data table indicates:

- Total horticulture sales: 273.6 kg.
- Endline sales ratio: 83.9% of total production
- Sales growth since baseline: 10.2%
- End-line ratio for both products: 83.9%

These results reflect strong endline market activity and successful scaling of mustard and cabbage production—particularly in Bobonaro and Ainaro. While sales data is aggregated and not broken down by vegetable, the figures indicate:

- Strong market demand and absorption
- Positive adjustments in production planning and harvest timing
- The effectiveness of SAPIP/MALFF-supported technologies such as tunnels and plastic mulch.

Over the past 12 months, sales ratio comparisons for mustard and cabbage show notable changes between pre-SAPIP (control group) and post-SAPIP (treatment group) periods. Before SAPIP's intervention, mustard accounted for only 4.9% of total sales, while cabbage held a much larger share at 68.9%. Following the intervention, mustard sales in the treatment group rose sharply to 22%, reflecting a significant improvement in its market performance. Cabbage sales in the post-SAPIP group dipped slightly to 62%, yet remained a strong contributor to overall sales. Combined, the total sales ratio for both crops increased from 73.6% pre-SAIP to 83.9% post-SAPIP/MALFF, indicating an overall strengthening of market performance for the treatment group.

Sales Ratio	Weighted Ratio - Pre-SAPIP/MALFF	Weighted Ratio - Post-SAPIP/MALFF
Mustard	4.9%	22%
Cabbage	68.9%	62%
TOTAL	**73.8%**	**83.9%**

[4] GIEWS, "Timor-Leste Country Briefs", 2025 (FAO, Timor-Leste), https://www.fao.org/giews/countrybrief/country.jsp?code=TLS.

5 Jessica Fanzo & Gianna Bonis-Profumo, "Timor-Leste Agriculture Sector Review", 2019 (ResearchGate, MAF), p58, https://www.researchgate.net/publication/354156322_Timor-Leste_Agriculture_Sector_Review.

[6] WFP, "Timor-Leste: Market Monitor", 2025, (WFP, Timor-Leste), https://www.wfp.org/publications/timor-leste-market-monitor.

Table 16. Comparison of CG & TG on the production of Mustard & Cabbage over past 12 months

3. Livestock Production and Sales

Production Trends

Over the past 12 months, SAPIP/MALFF-supported farmer groups across Ainaro, Covalima, and Bobonaro demonstrated stronger performance in livestock production when compared to control group counterparts. The treatment group outproduced the control group by approximately 25%, particularly in the categories of chicken, cow, and pig production.

ACCESS TO MARKET	Pre-SAPIP/MALFF (CG) market ratio	Post-SAPIP/MALF (TG) market ratio
Pig	6.9%	23%
Goat	9.4%	1%
Cow	0.5%	13%
Chicken	2.6%	4%
Total Average	**19.4%**	**41.0%**

Table 17: Comparison of Livestock Production (TG vs. CG)

Comparison of "Access to Market" ratios between the pre-SAPIP/MALFF control group and the post-SAPIP/MAFF treatment group shows substantial improvements in most livestock categories. Pig market access rose sharply from 6.9% to 23%, while cattle increased from 0.5% to 13%. Chickens saw a modest rise from 2.6% to 4%, whereas goat market access declined from 9.4% to 1%. Overall, the average market access for all livestock combined more than doubled, from 19.4% in the control group to 41.0% in the treatment group.

These results, presented in the table above, Comparison of Livestock Production (TG vs. CG), highlight SAPIP/MALFF's effectiveness in improving animal husbandry practices and linking farmers to markets in targeted areas.

Stakeholders noted ongoing challenges, including disease outbreaks that particularly affected pig and poultry populations. Even so, many farmers—especially those raising cattle—reported scaling up their livestock businesses due to better market access and improved resource availability.

While there was a slight drop from midline results, likely due to market fluctuations or time needed to recover from livestock disease impacts, the overall upward trend from baseline demonstrates stronger commercialization and value chain integration of livestock farmers.

Livestock Product	Share of Total Sales (%)	End-line Quantity Ratio (%)
Pig	42%	55%
Cow	5%	21%
Goat	45%	29%
Chicken	7%	48%

Table 18. End-line Quantity Ratio

The highest share in terms of value came from pigs and goats, despite lower quantity ratios—demonstrating their higher market price per unit. Pigs and chicken had the highest quantity sold, 55% and 48% respectively. Lower sales shares for goats and cows may also reflect reduced availability due to earlier disease outbreaks.

Livestock interventions under SAPIP/MALFF have had a notably positive impact on household-level animal production and sales. Despite temporary disease-related losses, especially in pigs and poultry, the treatment group outperformed the control group in all key livestock categories. Stronger results in cattle and chicken production—paired with rising endline sales—highlight improved productivity and market readiness among participating farmers. To sustain momentum, future efforts should emphasize:

- Strengthening animal health systems and disease prevention
- Expanding market linkages for small ruminants
- Promoting tailored feed and breeding strategies to further boost livestock productivity

4. Sales Summary – Horticulture End-line

Category	Value
Total Horticulture Sales (kg)	273,6
Sales Ratio from End-line (kg)	83.9%
End-line Sales Growth vs. Baseline	+10%

Table 19. Horticulture End-line value

- Paddy & Maize:
  Total sales: 312.86 kg
  Endline sales ratio: 23.9% (paddy), 2.1% (maize)
  Weighted quantity sold: 48.8% of production
- Livestock:
  Total units sold: 1320 units, Total sales: $767,515
  Endline sales ratio: 153% (up from 83.5% at baseline)
  Key contributors:
  - Cow: 45% of sales | 29% quantity sold
  - Pig: 42% of sales | 55% quantity sold
  - Weighted sales ratio: 41%
  - A significant increase in chicken sales was observed in treatment groups compared to control.
- Vegetables (Mustard & Cabbage):
  - Total sales: 273.6
  - Endline sales ratio: 158%
  - Weighted endline ratio: 83.9%
  - Sales ratio over baseline: 10.1%
  - Major production and sales concentrated in Bobonaro and Ainaro
  - Treatment groups outperformed control groups by approximately 75% in both mustard and cabbage sales.

5. Farmer Perspectives

FGDs and key informants reported:

- Optimism about future market access, citing smooth sales processes and high demand for livestock. While some infrastructure gaps remain for crops like maize and rice, recent buyer interest suggests a promising shift toward better commercialization.
- Road access in some part of the regions, pose a challenge for farmer groups to deliver goods for traders and/or hinder traders to reach the farmers.

4.6. Challenges faced by beneficiaries in adopting SAPIP/MALFF interventions

While SAPIP/MALFF interventions were generally well received, a range of challenges affected the pace and consistency of adoption across target communities. These included both structural and contextual barriers, as well as project-specific implementation delays.

1.6.1. Access and Timing Constraints

- Many farmers struggled to align training or grant activities with seasonal calendars due to late delivery of inputs or training sessions.
- Delays in grant approvals and disbursements limited the ability of groups to implement planned activities on time, particularly during critical planting windows/cropping seasons.

1.6.2. Limited Technical Follow-up

- While initial trainings were widely delivered, beneficiaries frequently reported a lack of consistent technical support or follow-up visits to address practical field-level challenges.
- Municipal extension officers (e.g., Agriculture Extension Workers—AEWs) often lacked transportation and dedicated time to provide regular assistance to farmer groups.
- Irregular monitoring by SAPIP/MALFF/MALFF staff limited the effective utilization of resources and compromised the sustainability of interventions.
- Technical training was typically provided only to group representatives, who struggled to transfer knowledge and skills to other group members.
- Many farmer groups lacked the experience and technical know-how to maintain modern agricultural technologies, compounded by limited access to spare parts.
- Chicken and pig farmer groups experienced high failure rates due to disease outbreaks, poor animal husbandry practices, and the premature sale of livestock.
- Tree seedlings faced low survival rates, often due to unsuitable planting conditions across varying elevations and poor timing of seedling distribution.
- Inadequate infrastructure and limited resources within MALFF hindered field staff from conducting effective monitoring and delivering timely technical support.

1.6.3. Low Literacy and Recordkeeping Skills

- Some farmer groups reported difficulties in understanding grant guidelines or completing documentation, especially where literacy levels were low.
- Financial record keeping for SLGs and grant tracking was a challenge, particularly in remote areas with limited access to financial support.

1.6.4. Topographical and Environmental Constraints:

- In hilly and erosion-prone areas, adoption of sustainable land management techniques (e.g., terraces, SALT) were labor-intensive and slow to scale.
- Water access remained a constant concern in several municipalities, limiting dry season production or expansion of vegetable crops.

1.6.5. Group Dynamics and Leadership Issues

- Not all groups were equally functional. Some faced internal disagreements, lack of leadership rotation, or inactive members, which affected participation and grant use.

- Gender norms and workload also limited women's ability to attend training or participate fully in group activities in some areas.

1.6.6. Technology Uptake Gaps

- While many appreciated tools like mini-tillers or tarpaulins, adoption of some promoted technologies (e.g., biochar, agroforestry) remained limited due to perceived complexity, lack of immediate return, or limited exposure.

4.7. Suggestions and Expectations

Across municipalities, farmers expressed strong appreciation for SAPIP/MALFF's support, while also offering thoughtful suggestions to enhance future programming. These reflections highlighted both practical improvements and aspirational goals for advancing local agriculture development. Many farmers emphasized the need for more consistent technical follow-up, better access to inputs, and improved market linkages to sustain the gains achieved under SAPIP/MALFF.

In addition, future efforts should focus on addressing disparities in participation and access to ensure that both men and women benefit equitably from project activities. This includes ensuring that all community members—regardless of gender—have equal access to the knowledge, skills, and resources provided through training programs. By promoting greater inclusivity, future initiatives can maximize their impact and strengthen resilience across entire communities.

4.7.1. Improved Grant and Input Delivery Systems

- Beneficiaries suggested simplifying grant disbursement processes and ensuring faster, more transparent approval mechanisms.
- There was a call for more flexible timelines and better alignment of input delivery with local cropping calendars.

4.7.2. More Regular and Localised Training Support

- Many recommended shorter, recurring trainings closer to their sucos to reinforce learning and support practical implementation.
- Peer-to-peer learning (e.g., model farmers) was suggested as a valuable way to encourage uptake and build confidence.

4.7.3. Ongoing Technical Mentorship

- Farmers expressed interest in more routine support visits from extension officers or NGO staff, especially during the early stages of adopting new practices.
- Some proposed appointing "group-level advisors" or training focal farmers to ensure ongoing assistance.

4.7.4. Increase Support for Women and Youth

- Women participants requested more targeted engagement in training design and leadership roles within groups.
- Youth expressed interest in more agro-enterprise skills and access to startup capital or equipment-sharing schemes.

4.7.5. Better Infrastructure and Market Linkages

- Suggestions included improving feeder roads, building water catchments or irrigation access, and identifying consistent buyers for surplus crops.
- Many groups hoped for support in aggregating production and connecting with traders beyond local markets.

4.7.6. Desire for Program Continuity and Scale-up

- Despite the approaching project closure, many beneficiaries expressed hope that SAPIP/MALFF—or a similar program—would continue.
- Several municipalities requested expansion of coverage to nearby sucos or replication of successful interventions in new areas.



V. CROSS-CUTTING THEMES

In addition to assessing results against the project's core development objectives, this section explores broader themes critical to the long-term relevance and impact of SAPIP/MALFF. These include the sustainability of project outcomes, the scalability of successful models, and the replicability of interventions in other geographic or programmatic contexts. Together these dimensions provide insights into SAPIP/MALFF's legacy and its potential to inform future agricultural investments in Timor-Leste.

5.1. Sustainability

A key consideration for SAPIP/MALFF was whether the benefits achieved through training, infrastructure, and farmer support would continue after project closure. Several factors support the livelihood of sustained impact:

1. **Institutional ownership:** Municipal and national agriculture staff were actively involved in planning and implementation, helping embed project approaches within government structures.
2. **Capacity building:** Training of farmers, extension officers, and community leaders has improved local skills in sustainable land management, input use and group organization.
3. **Group-based models:** Many of the 550 groups supported by SAPIP/MALFF remain active and are continuing to meet, save, and apply new techniques independently.
4. **Safeguards and monitoring tools:** Introduction of tools such as the grievance redress mechanism and Kobo Toolbox for digital M&E have helped standardize practices across municipalities.

However, some risks remain, including turnover of municipal staff, uneven levels of extension support and follow-up, and limited financial resources to sustain activities without external support. Sustainability will depend on continued investment by MALFF and Municipal Authorities, as well as coordination with other donor-supported initiatives.

5.2. Scalability

Several SAPIP/MALFF interventions demonstrated strong potential for scale-up, particularly where they combined technical training, group mobilization, and access to small grants or equipment. These included:

1. **Farmer Field Schools (FFS):** Widely praised by farmers and staff alike. FFS offered practical, hands-on learning that could be expanded across more sucos.
2. **Mini tillers and appropriate technologies:** Mechanization tools introduced through SAPIP/MALFF grants were in high demand, improving labor efficiency and uptake of climate-smart practices.
3. **Watershed-based planning:** The participatory approach to landscape management offers a model for other regions vulnerable to land degradation and erosion.

Scaling up these successes will require streamlining of grant processes, greater decentralization of resources to municipalities, and partnerships with local NGOs for last-mile delivery.

5.3. Replicability

SAPIP/MALFF offers several lessons for replication in other regions or programs:

1. **Locally led planning:** The use of Suco and Watershed Development Plans ensured that interventions were grounded in community priorities, increasing ownership, and relevance.

2. **Flexible delivery mechanisms:** Use of NGO partners allowed for adaptive implementation and tailored support, particularly where public extension systems faced constraints.
3. **Integration of productivity, market access, and natural resource management:** Rather than treating these areas separately, SAPIP/MALFF's integrated approach allowed for mutually reinforcing benefits—improving yields while conserving resources.

Replication will require context-sensitive adjustments, especially in areas with different topographies, infrastructure challenges, or sociocultural dynamics. The experience from SAPIP/MALFF can directly inform future government and donor programming focused on climate-resilient, inclusive rural development.



VI. CONCLUSIONS AND RECOMMENDATIONS

6.1. Conclusions

The Sustainable Agriculture Productivity Improvement Project (SAPIP/MALFF) has contributed significantly to enhancing smallholder productivity and strengthening agricultural systems in Timor-Leste. Notable achievements include the widespread adoption of improved land management practices such as composting, SALT, and mechanized cultivation, as well as the successful uptake of post-harvest and processing technologies like threshers and milling machines. These interventions contributed to reduced post-harvest losses—down from 19% to 5% for paddy—and increased market engagement for vegetables and livestock, with endline sales ratios reaching 84.8% and 30.6% respectively.

Institutionally, the project supported the development of MALFF's monitoring systems and built local extension capacity through training and equipment provision. Gender inclusion was evident through the participation of female farmers in technology adoption and decision-making activities, though disparities in access and scale remain.

However, challenges persist. Limited technical follow-up and inadequate capacity among field staff affected the sustainability and reach of several interventions. Livestock groups, particularly for pigs and chickens, struggled due to disease outbreaks, insufficient veterinary support, and weak management skills.
Furthermore, geographic and seasonal misalignments in input distribution (e.g., seedlings) and uneven market linkages hindered consistent income generation for some groups.

Lessons learned highlight the importance of sustained technical support, targeted training for both farmers and extension workers, and improved coordination between national and municipal levels. Future programs should emphasize gender-responsive approaches, strengthen value chain integration, and expand access to post-harvest infrastructure and veterinary services to sustain and scale the gains achieved through SAPIP/MALFF.

6.2 For MALFF & Government

SAPIP/MALFF interventions—such as technical training, multifunction machinery, and market access—have clearly motivated farmers to boost productivity and expand cultivation across crops and livestock. However, many farmer groups still lack access to essential technology and support, leaving large areas of land uncultivated. There is strong demand to extend SAPIP/MALFF's reach to additional villages.

To sustain impact, future efforts should prioritize building the capacity of both MALFF field staff and farmers, especially in livestock disease management. Effective post-distribution monitoring of equipment and grants is also critical to ensure proper use and long-term sustainability.

VII. ANNEXES

Annex 1: List of Reviewed Documents

1. **SAPIP/MALFF Baseline Report** – SAPIP/MALFF Baselinel Report_18Jul2019.docx
2. **SAPIP/MALFF Midline Beneficiary Assessment** – SAPIP/MALFF MIDLINE BENEFICIARY ASSESSMENT, FINAL REPORT FROM D-EIGHT,.docx
3. **SAPIP/MALFF Endline Evaluation (Draft)** – The SAPIP/MALFF Endline Evaluation Report_DRAFT V01_07082025.docx
4. **SAPIP/MALFF Progress Report Jan–Jun 2022** – Progress Report Jan-Jun 2022 (2).pdf
5. **SAPIP/MALFF Progress Report Jun–Dec 2023** – SAPIP/MALFF progress Report June - Dec 2023(1).docx
6. **SAPIP/MALFF Progress Report Jan–Oct 2024** – SAPIP/MALFF Progress Report (January - October 2024) (002).docx
7. **SAPIP/MALFF Progress Report Jan–Jun 2024** – SAPIP/MALFF progress Report Jan - June 2024.docx
8. **SAPIP/MALFF Results Framework Monitoring Update (July 2024)** – Result Framework Monitoring Update July24.xlsx
9. **SAPIP/MALFF Internal Report Summaries** – SAPIP/MALFF Internal Report Summaries.docx
10. **RSSP2 Performance Indicators and Impact Assessment (2012)** – Volume 1 Performance Indicators Update
11. **RSSP2 Performance Indicators Update and Impact Assessment (2012)** – Volume 2 Performance Indicators Update

Annex 2: Survey Questionnaires & Interview Guides

AGRICULTURE PRODUCTION SYSTEM – ANNUAL HOUSEHOLD SURVEY

I. INTRODUCTION

Hello,
My name is ..... and I work with the Sustainable Agricultural Productivity Improvement Project (SAPIP/MALFF) of the Ministry of Agriculture, Livestock, Forestry and Fisheries (MALFF).
And I am affiliated with the Sustainable Agricultural Production and Productivity Improvement Project (SAPIP/MALFF) under the Ministry of Agriculture and Fisheries."

We are in search of collecting data regarding the agricultural production system within your watershed. This data is crucial, as it will assist us in ensuring that our project is aligned with its objectives of enhancing production and productivity, as well as marketing the output of smallholder agriculture across four watersheds in Timor-Leste.

You have been selected to participate in this assessment/survey, which comprises of questions concerning your agricultural production system.

This questionnaire will take about 30 minutes. Your participation is entirely voluntary; you are under no obligation to respond to this questionnaire. However, if you decide to participate, you are allowed to skip any questions you would not like to answer or end the questionnaire anytime you want.

All answers you provide are strictly confidential; we will not share any information which will allow identifying you.

1. Yes 2. No

Would you like to pose any questions about this assessment/survey or the information you are going to provide?

2. Yes 2. No

(INTERVIEWER: Please record any question the participant is asking).

Information of the interviewer

Format	
Name of interviewer	
Gender	1. Male 2. Female
Date of Interview	

1. INFORMATION ABOUT THE LOCATION

Question	Answer Options
1.1 Watershed?	1. Raumoco 2. Tono 3. Loes 4. Bee Lulik
1.2 Municipality?	
1.3 Administrative post?	
1.4 Suco? (village)	
1.5 Aldeia (sub village)	
1.6 What is the name of your farmers group?	

2. RESPONDENT NAME AND GENDER

Question	Answer Options
2.1 Name of Respondent	
2.2 What is your gender?	1. Male 2. Female
2.3 What is your telephone number?	+670

3. AGRICULTURAL PRODUCTION SYSTEM and LAND SIZE

Crop production and Land size

3.1 What are the main crops you are producing?	1. Rice 2. Maize 3. Beans 4. Other
3.2 If others? What other crops?	
3.3 How big is your plot?	_____ Ha
3.4 Your plot, how wide is it?	_____ Meters
3.5 How long is your plot	_____ Meters

PRODUCTIVITY, POST-HARVEST LOSSES AND MARKET SALES OF MAJOR CROPS

4. Rice production, losses and sales

4.1 How much rice did you harvest over the past 12 months?	1. Sack 25kg 2. Sack 50kg 3. Silo 75kg 4. Silo 100kg 5. Silo 200kg 6. Silo 1000kg 7. Sack Jumbo 8. Drum 200L 9. Kg 10. Other.....
4.2 Production: How much rice did you harvest before SAPIP/MALFF?	1. Sack 25kg 2. Sack 50kg 3. Silo 75kg 4. Silo 100kg 5. Silo 200kg 6. Silo 1000kg 7. Sack Jumbo 8. Drum 200L 9. Kg 10. Other.....
4.3 Of your total rice production, how much did you lose after harvest because of rodents, mold, flooding, etc.	1. Sack 25kg 2. Sack 50kg 3. Silo 75kg 4. Silo 100kg 5. Silo 200kg 6. Silo 1000kg 7. Sack Jumbo 8. Drum 200L 9. Kg 10. Other.....
4.4 Can you recall how much rice you lost after harvest before SAPIP/MALFF?	1. Sack 25kg 2. Sack 50kg 3. Silo 75kg 4. Silo 100kg 5. Silo 200kg

	6. Silo 1000kg 7. Sack Jumbo 8. Drum 200L 9. Kg 10. Other.....
4.5 Of your total rice production over the past 12 months, how much did you sell at the market or to a contractor/middleman?	1. Sack 25kg 2. Sack 50kg 3. Silo 75kg 4. Silo 100kg 5. Silo 200kg 6. Silo 1000kg 7. Sack Jumbo 8. Drum 200L 9. Kg 10. Other.....
4.6 Can you recall how much rice you sold in the market before SAPIP/MALFF?	1. Sack 25kg 2. Sack 50kg 3. Silo 75kg 4. Silo 100kg 5. Silo 200kg 6. Silo 1000kg 7. Sack Jumbo 8. Drum 200L 9. Kg 10. Other.....

Rice Planted area:

4.7 Planted area: How big is the lot you used for rice over the past 12 months?	_____ ha
4.7.1 How long is the plot where you planted rice?	_____ meters
4.7.2 How wide is the plot where you planted rice?	_____ meters
4.8 Planted area: How big was the lot you used for rice before SAPIP/MALFF?	
4.8.1 How long is the plot where you planted rice before SAPIP/MALFF?	_____ meters
4.8.2 How wide is the plot where you planted rice before SAPIP/MALFF?	_____ meters

5. Maize production

5.1 Production: How much maize did you harvest over the past 12 months?	1. Sack 25kg 2. Sack 50kg 3. Silo 75kg 4. Silo 100kg 5. Silo 200kg 6. Silo 1000kg 7. Sack Jumbo

	8. Drum 200L 9. Kg 10. Other.....
5.2 Production: How much maize did you before SAPIP/MALFF?	1. Sack 25kg 2. Sack 50kg 3. Silo 75kg 4. Silo 100kg 5. Silo 200kg 6. Silo 1000kg 7. Sack Jumbo 8. Drum 200L 9. Kg 10. Other.....
5.3 Of your total maize production, how much did you lose after harvest because of rodents, mold, flooding, etc.	1. Sack 25kg 2. Sack 50kg 3. Silo 75kg 4. Silo 100kg 5. Silo 200kg 6. Silo 1000kg 7. Sack Jumbo 8. Drum 200L 9. Kg 10. Other.....
5.4 Can you recall how much maize you lost after harvest before SAPIP/MALFF?	1. Sack 25kg 2. Sack 50kg 3. Silo 75kg 4. Silo 100kg 5. Silo 200kg 6. Silo 1000kg 7. Sack Jumbo 8. Drum 200L 9. Kg 10. Other.....
5.5 Of your total maize production over the past 12 months, how much did you sell at the market or to a contractor/middleman?	1. Sack 25kg 2. Sack 50kg 3. Silo 75kg 4. Silo 100kg 5. Silo 200kg 6. Silo 1000kg 7. Sack Jumbo 8. Drum 200L 9. Kg 10. Other.....
5.6 Can you recall how much maize you sold in the market before SAPIP/MALFF?	1. Sack 25kg 2. Sack 50kg 3. Silo 75kg 4. Silo 100kg 5. Silo 200kg 6. Silo 1000kg 7. Sack Jumbo 8. Drum 200L 9. Kg

	10. Other.....

MAIZE Planted area:

5.7 Planted area: How big is the lot you used for maize over the past 12 months?	.....ha
5.7.1 How long is the plot where you planted maize?	_____ meters
5.7.2 How wide is the plot where you planted maize?	_____ meters
5.8 Planted area: How big was the lot you used for maize before SAPIP/MALFF?	.....ha
5.8.1 How long is the plot where you planted maize before SAPIP/MALFF?	_____ meters
5.8.2 How wide is the plot where you planted maize before SAPIP/MALFF?	_____ meters

6. Vegetables production and market sales***

6.1 How many times did you harvest **mustard** over the past 12 months	_____. times
6.2 On average, how much mustard did you produce in each harvest?	1. Small bunches 2. Big bunches 3. Crop 4. Kg 5. Other
6.3 On average, how much mustard did you sell per harvest?	1. Small bunches 2. Big bunches 3. Crop 4. Kg 5. Other
6.4 How many times did you harvest **tomatoes** over the past 12 months	_____. times
6.5 On average, how much tomatoes did you produce in each harvest?	1. Bucket 1L 2. Bucket 5L 3. Bucket 20L 4. Stack 5. Kg 6. Other
6.6 On average, how much tomatoes did you sell per harvest?	1. Bucket 1L 2. Bucket 5L 3. Bucket 20L 4. Stack 5. Kg 6. Other

*** To calculate production and sales per year, you will need to multiply the responses on production and sales by the number of harvests.

7. Livestock

7.1 What animals do you rear at your farm? **[M]**	1. Chicken 2. Goats 3. Cows 4. Pigs 5. Other
7.2 If others? What other animals?	.....

8. Chicken***

8.1 How many chickens do you have this month?	Numbers .....
8.2 How many chickens did you have before SAPIP/MALFF?	Numbers .....
8.3 On average, how many of the total chickens do you sell in the market or to a contractor/middleman per month.	Numbers .....
8.4 On average, before SAPIP/MALFF, how many of the total chickens did you sell in the market or to a contractor/middleman per month?	Numbers .....

*** To obtain the data per year, you will need to multiply by 12.

9. Goats

9.1 How many goats do you have this year?	Numbers .....
9.2 How many goats did you have before SAPIP/MALFF?	Numbers .....
9.3 How many of the total goats did you sell in the market or to a contractor/middleman over the past year?	Numbers .....
9.4 How many of the total goats did you sell in the market or to a contractor/middleman before SAPIP/MALFF?	Numbers .....

10. Pigs

10.1 How many pigs do you have this year?	Numbers .....
10.2 How many pigs did you have before SAPIP/MALFF?	Numbers .....
10.3 How many of the total pigs did you sell in the market or to a contractor/middleman over the past year?	Numbers .....
10.4 How many of the total pigs did you sell in the market or to a contractor/middleman before SAPIP/MALFF?	Numbers .....

11. Cows

11.1 How many cows do you have this year?	Numbers .....
11.2 How many cows did you have before SAPIP/MALFF?	Numbers .....
11.3 How many of the total cows did you sell in the market or to a contractor/middleman over the past year?	Numbers .....
11.4 How many of the total cows did you sell in the market or to a contractor/middleman before SAPIP/MALFF?	Numbers .....

12. PARTICIPATION IN A FARMERS GROUP

12.1. Do you or any of your family members currently participate in a group of farmers or farmers association?

1. Yes 2. No

12.2 If so, could you tell us about what kind of activities you or any family members are involved in? (And also benefits they receive as members of Farmer Groups?)

.....
.....

12.3 Before SAPIP/MALFF, were you part of a group or an association? 1. Yes
2. No

13. ADOPTION OF IMPROVED LAND MANAGEMENTS PRACTICES

13.1 Over the past twelve months, did you apply any of the following practices? (list all practices that SAPIP/MALFF promoted)

1. Hand tractor utilization
2. Compost organic
3. Liquid fertilizer
4. Slope agriculture land Technique (SALT)/terracing
5. Land dac/weeding equipment
6. Tunnel or Green House utilization
7. Other _____

14. ADOPTIONS OF NEW AGRICULTURAL TECHNOLOGIES

14.1 Over the past twelve months, did you apply any of the following post-harvest technologies (list all technologies promoted by SAPIP/MALFF)

1. Milling machine
2. Threshing machine
3. Coffee milling machine
4. Coconut pressure machine
5. Pellet machine
6. Other _____

15. TRAINING

15.1. Over the past 5 years, did you attend any training promoted by SAPIP/MALFF? Yes No

15.2 If yes, what was the training(s) on?

a. Salt ☐

b. Technology utilization ☐
c. Nutrition ☐
d. Saving and loan ☐
e. Agribusiness ☐
f. Production management ☐
g. Nursery planting ☐
h. Animal feeding ☐
i. Post harvest handling management ☐
j. Utilization of cutting paddy machine ☐
k. Utilization of planting paddy machine ☐

16. SUPPORT INTERVENTION

Technology support

16.1. What kind of agriculture technology support did you or your farmer group receive from SAPIP/MALFF?

a. Hand tractor ☐
b. Cutting paddy machine ☐
c. Planting paddy machine ☐
d. Multifunction machine – Paddy & Maize processing machine ☐
e. Café processing Machine ☐
f. Coconut processing machine ☐
g. Candlenut processing machine ☐
h. Silo Drum ☐
i. Shelter ☐

16.2 Livestock Support

a. Local Chicken ☐
b. Goat ☐
c. Cows ☐
d. Pigs ☐

16.3 Horticulture support

a. Vegetable seeds ☐
b. Commercialisation seeds ☐

Questions for KII and FGDs

Component 1: Planning Processes (YES/NO Focus)

1. Was a Watershed Management Council established in your area?
   - ☐ Yes ☐ No
   - If yes: Is it still active? What does it do?
2. Has a Watershed Agricultural Development Plan been prepared?
   - ☐ Yes ☐ No
   - If yes: Is it being used? How?
3. Was a Sustainable Community Agricultural Development Plan developed?
   - ☐ Yes ☐ No
   - If yes: Who was involved in its preparation? Is it guiding community activities?
4. Do local farmers or groups participate in any decisions related to these plans?

2. KII Guiding Questions for Government and Local Leaders

1. **Productivity**
   - Have you noticed any changes in agricultural productivity in your community over the past few years?
   - What crops or practices seem to be performing better now?
   - What are the main constraints to increase productivity?
2. **Post-Harvest Losses**
   - Have farmers in your area made any changes to how they store or handle their harvests?
   - Are there fewer complaints or issues with post-harvest losses?
3. **Market Access**
   - Have local farmers found it easier to sell their produce or access new markets?
   - Are there any new buyers, traders, or market linkages in the area?
   - What constraints face farmers to increase sales and access new markets?
4. **Planning Structures (Component 1)**
   - Was Watershed Management Council established here? Is it still active?
   - Are community or watershed development plans being used to guide local activities?
5. **Overall Reflections**
   - What do you think have been the most important benefits (if any) of the program for your community?
   - Are there any remaining gaps or challenges you think need more attention?

3. FGD with SAPIP/MALFF Farmer groups

1. Can you briefly describe your involvement in the project or related activities?

2. What changes have you observed in agricultural practices in your area over the past few years?

3. Have you observed any changes in the productivity of your crops/livestock since the program began?

- If yes, what do you think contributed most to this improvement?
- If no, what do you think were the main challenges?

4. Did you or your group receives any training, inputs, or advisory services to help increase productivity?

- Were these useful? Why or why not?

5. Have farming practices changed (e.g., planting techniques, use of compost/fertilizer, crop rotation)? How?

6. What practices, technologies, or facilities (e.g., storage units, drying platforms, sacks) were introduced or promoted?

- Were they adopted? Why or why not?

7. Have you received training on post-harvest handling? How effective was it?

8. How do you currently sell your products (e.g., direct to market, via middlemen, cooperatives)?

9. Has your access to markets improved? In what ways?

10. Have you noticed any change in the price you can get for your products?

==========THE END==========

Annex 3: List of Key Informants and FGD Participants

Municipality	Name of Respondent	Title	Date of interview
Ainaro	Ms. Manuela G.B. Corte Real	President Authority	25 June 2025
	Mr. Marcos de Araujo	Head of Department of Veternary, Ainaro	25 June 2025
	Mr. Gregorio Lopes Pereira	Village Chief of Aituto	25 June 2025
	Mr. Longinos de Araujo	Village Chief of Casa	25 June 2025
Covalima	Ms. Alipio Magno	Administrator of Zumalai	26 June 2025
	Mr. Urbano M. T. Suri	Head of Department of Livestock of Covalima	26 June 2025
	Mr. Crsitiano da Silva	MALFF Extension for Raimea Village	26 June 2025

	Mr. Agustinho Sequeira	Village Chief of Raimea	26 June 2025
Bobonaro	Mr. Domingos do Carmo	MALFF Extension staff	27 June 2025
	Mr. Augusto Caetano	Post Administrator of Maliana	27 June 2025
	Ms. Joanina Araujo	MALFF chief department	27 June 2025
Ermera	Mr. Marcos de J. S. Martins	Director of MALFF of Ermera	01 July 2025
	Mr. Manuel Oliveira	Administrator of Atsabe Post	01 July 2025
	Mr. Joaquim de F. Salsinha	Head of Department of Extension Services of Ermera	01 July 2025
	Mr. Antonio Alves da Costa	Secretary of Integrated Planning and Investment of Ermera	01 July 2025
RAEOA	Mr. Abilio Ili	Head of Sub Village of Saben	01 July 2025
	Mr. Raimundo Oki	Extension Services Staff	01 July 2025