



MICRO-FRANCHISED AGRICULTURAL SERVICE EXPANDED PHASE 2 (MASE2) PROJECT

Cambodia | Impact Brief
(2017–2022)



About this report

This brief summarises the results from an end of project evaluation of World Vision Cambodia’s MASE2 project (2017-2022), completed independently by Causal Design Cambodia, between April and June, 2022. Evaluation design and data analysis was supported by Saba Mebrahtu Habte, Evidence Building Advisor, and was technically supported and reviewed by Ellie Wong, Economic Empowerment Manager; Diana Johannis, Inclusive Economic Development Technical Advisor; Jane Hosking, Country Impact Manager for Cambodia, World Vision Australia; Thano Im, Cambodia MASE2 Senior Project Manager, and Keo Mardy, Monitoring, Evaluation, Accountability and Learning Specialist, World Vision International in Cambodia.

Micro-Franchised Agricultural Service Expanded Phase 2 (MASE2) Project was supported by the Australian Government through the Australian NGO Cooperation Program (ANCP).

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Front cover photo: Ms. Ty Srey, a successful female farmer, with her family.





Members of the Agricultural Cooperative joined vegetable's exhibition and seeking the vegetables in the event.

CONTEXT

Cambodia has made significant strides in poverty reduction and economic growth in recent years.

However, 18% of the population still live below the poverty line,¹ with most of the poverty concentrated in the rural areas (home to 76% of the population). Agriculture in Cambodia is undergoing a transformation from subsistence to commercial farming, but there are many who are not experiencing the benefits of this. At the national level, progress has been driven by increased access to irrigation, mechanisation, improved agricultural inputs, and adoption of advanced technology. Even though the COVID-19 pandemic has had a dampening effect on the Cambodian economy (as with many countries across the globe), the agricultural sector has not been affected as seriously. The pandemic provided an opportunity for farmers to increase production in order to meet the sharp increase in demand, much of which was due to a reduction in the importation of produce from neighbouring countries.²

Despite this boost in demand, there are still challenges linked to agricultural productivity, especially among the poorer farming households. A significant portion of rural households are not taking part in the shift from subsistence to commercial agriculture, with many still working in the rice value chain. Vegetables are now one of Cambodia's most profitable agricultural products, especially as organic vegetables and the sector's good agricultural practices (GAP) gain popularity around food safety concerns. Sustainable growing practices have received greater attention in recent years, primarily through the Cambodian

government's Green Growth Initiative, which promotes the use of sustainable farming practices and natural resource management with the objective of reducing reliance on chemical fertilisers and pesticides.

There are many opportunities to expand domestic vegetable production to meet local demand, and yet 70% of Cambodian vegetables are still imported, largely from Vietnam, Thailand, and China. Key challenges remain for many rural households and these include low productivity due to a lack of access to start-up capital, as well as limited access to quality inputs (fertilisers, pesticides, seeds, and irrigation), technical knowledge, robust output market systems, and connections between value chain actors.

Women make up approximately 75% of Cambodian farmers due to migration.³ Yet women still face systemic barriers related to household decision-making structures, as well as their disproportionate burden in terms of domestic duties and care activities, and broader limitations in economic participation. This is linked to underlying social norms associated to women and men's roles.

The MASE2 project has sought to capitalise on opportunities in the domestic vegetable market to strengthen market systems, increase the capacity of smallholder farmers, and ultimately empower farmers economically, including the vulnerable – poor, women, and people with a disability. In particular, the project sought to promote GAP and organic vegetable production, as well as pro-poor, climate-smart and gender-inclusive outcomes.

1 <https://www.worldbank.org/en/country/cambodia/overview>

2 <https://opendevelopmentcambodia.net/cambodias-agriculture-sector-amid-covid-19/>

3 <https://cambodia.oxfam.org/WLASproject> <https://www.voacambodia.com/a/empowering-women-in-cambodia-farming-sector/3232287>

PROJECT OVERVIEW

MASE2 Goal:

To improve the economic empowerment of 5,502 farmers (1,809 female/3,693 male) in the 18 districts of Takeo and Kandal provinces through an inclusive market systems development approach (iMSD) in the vegetable value chain.

The Objectives:

(1) Ensuring increased profitability of agricultural production for male and female farmers associated with Lors Thmey; and

(2) Supporting men and women from poor communities (including on-farm and off-farm workers) to become more productive and profitable farmers.

Under Outcome 1, MASE2 sought to build upon successes from the previous MASE1 project, which worked with Lors Thmey, a social enterprise founded by International Development Enterprise (IDE), to train and develop micro-entrepreneurs to provide farm business advisory services and agricultural inputs targeted at smallholder farmers in Cambodia. In partnership with Lors Thmey, government, private sector actors, local community partners, and farm business advisors (FBAs), the project supported farmers by building their capacity and knowledge related to horticulture technology, strengthening market linkages (through adherence to GAP), and promoting inclusivity across gender and disability status.

In addition to scaling up activities implemented through Lors Thmey, this second phase of the MASE project also sought to address gaps in the inclusion of vulnerable poor and female farmers under Outcome 2, in particular those Poor ID 1 and 2 and those living close to the poverty line (non-ID poor). The project also adopted the iMSD hybrid approach with a focus on gender inclusion.



A GAP's vegetable farm model of MASE2 project.

iMSD is a hybrid approach consisting of two integrated parts: 1) The market-focused approach ('pull', 'indirect'), and 2) the household-focused approach ('push', 'direct'). The market-focused approach is centred around engaging with market actors (private and public sector). This approach is closely linked with the development of inclusive business models that include the poor within a company's supply chains as employees, producers and business owners, or develop affordable goods and services needed by the poor. The household-focused approach is designed to accelerate inclusion outcomes and directly increase households' productive capacities to engage in markets, manage finances or develop their livelihoods. Household-focused activities are implemented to reach more vulnerable groups, and when there are limited partners and/or services, such as in the context of thin markets. These activities are designed to complement and co-exist with market-focused activities. In many cases, these activities will accelerate systemic change by mitigating risks and increasing participation and benefits for target communities. This dual approach stems from a recognition that factors such as poverty, financial literacy and gender experienced by different groups will influence the way they engage with markets.

In the MASE2 project, World Vision partnered with agribusiness working in the input and output market with a focus on developing inclusive business models centred around improved agri-inputs for GAP vegetable production and aggregation – or collective buying and selling. A strategic focus on GAP vegetables was selected to not only provide an opportunity to reach poorer farmers, increase profitability and stimulate market demand, but also to contribute to positive economic, health and environmental outcomes through a reduction in the use of unsafe pesticides. Key partners included: agricultural extension, agricultural cooperatives (ACs), and private sector partners (Cambodian social enterprise, Lors Thmey, Tropicam, and Eco-Agri Co. Ltd).

To improve the productive capacity of farmers' groups to engage in the vegetable value chain, the project worked at several levels: 1) to increase the productivity capacity of farmers via targeted business and financial literacy training, 2) to support aggregation by linking farmer groups with ACs, 3) by supporting the capacity building of local agricultural agents (LAAs) or micro-entrepreneurs, who support collective buying and selling activities while also providing technical training as an embedded service, 4) by linking farmers with the provincial department of agriculture, who have government oversight over ACs.

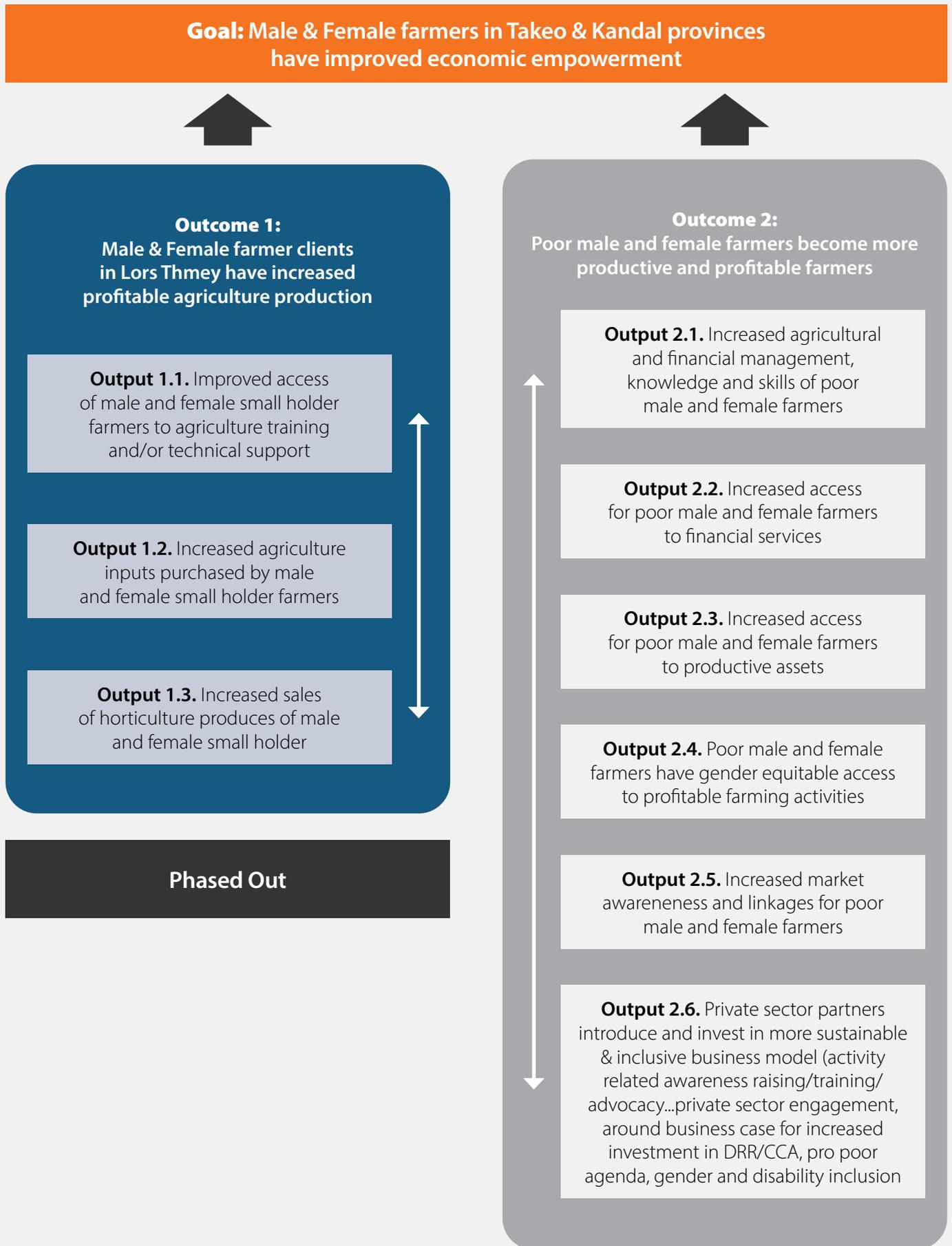
The project also worked towards mainstreaming women's economic empowerment (WEE)⁴ outcomes with a focus on economic advancement, access, agency, and equitable systems. By mainstreaming gender in Outcomes 1 and 2, the project sought to improve women's access to new economic opportunities with some targeted activities including gender awareness-raising events at the community level, as well as gender dialogues at the household level. The aim here was to promote women's agency and positive norms supportive of women's economic participation.

Finally, the MASE2 project was strongly aligned with the Cambodian government's Green Growth Initiative⁵ by supporting: 1) green investment and green jobs creation, 2) green economy management in balance with the environment, and 3) green environment and natural resources management. Green investment and job creation were supported primarily through the employment of LAAs and FBAs, as well as investment in ACs, and integration of Lors Thmey for MASE2 farmers.

4 World Vision has a holistic definition of the women's economic empowerment (WEE) framework, including four key domains: economic advancement, access, agency and equitable systems. WEE Framework Manual online version.pdf (wvi.org) <https://www.wvi.org/sites/default/files/2022-03/WEE%20Framework%20Manual%20online%20version.pdf>

5 Royal Government of Cambodia. National Strategic Plan on Green Growth 2013-2020. Accessed at: <https://www.greengrowthknowledge.org/sites/default/files/downloads/policy-database/CAMBODIA%29%20National%20Strategic%20Plan%20on%20Green%20Growth%202013-2030.pdf>

Figure 1: MASE2 Theory of Change



HOW MASE2 ACHIEVES CHANGE ACROSS OUTCOMES 1 & 2

Market-focused strategies:

- Incentivise input companies and ACs to provide quality and organic inputs for farmers.
- Engage ACs and output market (buyer) to collect, buying organic vegetables at better prices from farmers and selling them to the end market, including via new collection points.
- Engage Lora Thmey and ACs to train LAAs and FBAs who provide GAP information for farmers as an embedded service.
- Promotion of peer-to-peer learning amongst LAAs and FBAs, especially women FBAs.
- Engage ACs to provide access to savings and loan services to farmers.
- Initiate and organise business forums/dialogues between farmer producers, ACs, and private sectors to improve quality of products and strengthen contract farming agreement.
- Organize vegetable exhibition to promote the GAP's products for market's expansions and linkages.

Household-focused strategies:

- Provide vulnerable households (Poor 1 and Poor 2) with productive asset transfers to kickstart livelihoods activities.
- Financial literacy and business training for farmers, including gender sessions linked to financial decision making.
- Additional coaching and support for vulnerable households (such as female-headed households, persons with disability).
- Gender dialogues for households and community-level gender-awareness activities in partnership with the Commune Committee for Women and Children (CCWC).
- Linkage with ACs so farmers can benefit from AC membership, which enables access to aggregation, finance and other benefits.
- Disaster risk reduction (DRR)-related activities for farmers linked to droughts and floods.
- Additional COVID-related activities for households, including cash and voucher programs and health awareness during periods of disrupted incomes.



Ms. Bun Villa, a female leader of Agricultural Cooperative, selling GAP's vegetables to villagers.

EVALUATION OVERVIEW

EVALUATION OBJECTIVES

The MASE2 evaluation has six primary objectives, aligned with:

- **Impact:** Examine when and for whom the project has achieved the stated goal indicators among disaggregated stakeholder groups (e.g. by gender and disability), including the additional impact on the environment/how the project contributed to environmental protection.
- **Effectiveness:** Analyse the extent to which project outcomes were achieved for specified target groups in the logframe and the major factors influencing the achievements.
- **Relevance:** Review both the project theory of change (TOC) and logframe, and evaluate the relevance of the intervention and appropriateness of implementation of models/approaches used.
- **Sustainability:** Examine the extent to which the net benefits of the project will continue or are likely to continue. Looking at engagement issues with the local government, service providers, private sector, environment, Organisations of Persons with Disabilities (OPDs), etc. Document promising practices to identify key lessons learned and recommendations to inform future World Vision programmatic design, particularly related to how to adapt livelihoods programming to be gender and disability inclusive.
- **Efficiency:** Assess how well project resources were used, as well as the extent to which the project delivered results in an economic and timely way, including value for money. Assess the value of the technical inputs and delivery mechanisms. Discuss the operational challenges of the wide breadth of locations.
- **Coherence:** Assess how well the project interventions fit, and identify strengths and weaknesses in the project design, implementation, or operating environment that enhanced or constrained optimal project effectiveness, respectively. Examine how the project is compatible with other interventions in the target area in the sector of agricultural development.

METHODOLOGY

This end of project evaluation utilised a mixed methods approach, consisting of 22 key informant interviews (KIIs), 23 focus group discussions (FGDs), and 811 quantitative surveys to collect data from key project stakeholders and participants.

The quantitative component of the evaluation leverages a pre-post analysis methodology to understand changes in key project indicators from baseline to endline, providing insights into changes in outcomes that occurred during the project implementation period. For indicators for which data was collected at both baseline and endline, the evaluation presents descriptive or summary statistics across both rounds of survey data. For indicators for which baseline data was not collected (including indicators related to project objectives defined after the project had begun, such as environmental sustainability), the research team presents comparative descriptive statistics for both MASE2 farmers and comparison group farmers.⁶ Additionally, the research team has utilised difference-in-means testing (primarily through t-tests)⁷

to identify whether observed differences are statistically significant, or not a product of random chance.

LIMITATIONS

A pre-post approach used in this analysis does have limitations in terms of isolating the impact of project intervention (treatment) from general improvements over time, as well as exogenous shocks such as COVID-19, or other potential interventions. A pre-post approach cannot isolate the causal impact of the project specifically, but trends observed between survey rounds can still be suggestive of project efficacy. The research team opted to use a pre-post design over the matching design proposed at baseline for several reasons, including the fact that the project's targeted focus on high-risk areas and the high likelihood of spillover effects, left limited options for identifying a valid comparison group required for a more rigorous research design.

6 A more detailed list of which indicators were included in the baseline versus those appearing only in the endline can be found in the indicator map, attached as an Appendix to this report.

7 T-Testing is a statistical inference tool used to test if the means of two groups are significantly different from one another.

FINDINGS

IMPACT

Evidence suggests that MASE2 farmers are better off across a range of goal indicators:

Participating farmers consistently reported improvements in goal-level indicators relative to comparison farmers at endline (Table 1).

Participating farmers showed higher differences from comparison farmers along key goal indicators.

There was a 2 percentage point decrease in the portion of multidimensionally poor households in the comparison group, compared to a reduction by 10 percentage points in the participating or treatment households. The mean Multi-Dimensional Poverty Index (MPI) score in the comparison did not lower at all, while World Vision households' mean MPI score lowered from 0.25 to 0.22.

The COVID-19 pandemic placed unprecedented constraints on households' ability to cover their expenses. An explicit focus of the MASE-2 project was to improve households ability to generate income and their ability to use that income to support children, such as healthcare and educational expenses. From baseline to the endline, the proportion of comparison households that were able to afford child's health expenses decreased by 15 percentage points, while participating

households' ability remained largely unchanged. Similarly, the ability to pay for childhood education expenses reduced by 9 percentage points in the comparison group, while the proportion of treatment households able to afford educational expenses increased by 12 percentage points. This suggests that participating households were better able to maintain spending in the face of pandemic related shocks.

Finally, the percent of participating households who reported satisfaction with time spent on leisure increased by 15 percentage points compared to only 5 percentage points in the comparison group. Satisfaction with time spent on income generating activities declined across both participating and comparison households, however, the reduction among MASE2 households was twice as large relative to comparison households.

Table 1. Baseline to Endline Changes in Goal Level Indicators Among Both Treatment and Control Households

Goal level indicators	Baseline		Endline		Difference	
	Comparison	Participants	Comparison	Participants	Comparison	Participants
G01 Percent of HHs reporting higher income from farming	N/A	N/A	24%	61%	N/A	N/A
G02 MPI Binary	25%	32%	23%	22%	-2%	-10%
G02 MPI Score	0.22	0.25	0.22	0.22	0	-0.03
G03 Percent of HHs investing in expanding farm business	N/A	N/A	42%	51%	N/A	N/A
G04 Percent of HHs able to pay for child's health expenses	89%	88%	74%	87%	-15%	-1%
G05 Percent of HHs able to pay for child's education expenses	72%	72%	63%	84%	-9%	12%
G07 Percent of HHs satisfied with time spent on leisure	63%	58%	68%	73%	5%	15%
G07 Percent of HHs satisfied with time spent on IGA	84%	85%	78%	73%	-6%	-12%
G07 Percent of HHs satisfied with time spent on care	N/A	N/A	60%	76%	N/A	N/A
G07 Percent of HHs satisfied with time spent on rest	N/A	N/A	68%	70%	N/A	N/A
G011 Percent of HHs able to pay for large expense	N/A	N/A	45%	66%	N/A	N/A
N	947	557	183	628		

Qualitative discussions confirmed that the MASE2 project’s iMSD approach successfully connected participating farmers to inputs, technical advisory support and training, and output marketing systems, which contributed to successful and sustainable production levels. They also added that this improved production capacity had led to an increase in both outputs and household income. Higher incomes from farming translated into better living conditions for these farmers and ultimately to better outcomes for their families as they were able to pay for child healthcare and educational expenses. This was also supported in interviews with farmers noting an improvement in their standard of living that enabled them to afford food for their children, and send them to school more regularly.

While both participating male and female-headed households showed improvements in key goal indicators compared to those in the comparison group, it was the participating female-headed households that had gained the most. As shown in Figure 1, 43% of female-headed households in the comparison group reported multidimensional poverty, compared to only 25% of participating female-headed households. However, a slightly higher proportion (21%) of participating male-headed households were defined as living in multi-dimensional poverty at endline compared with those in the comparison group (18%). This suggests that female-headed households, who are likely more vulnerable than male-headed households, showed greater welfare gains associated with project participation. For this more vulnerable group, the MASE2 project provided opportunities for increased income from farming, a lower likelihood of living in multidimensional poverty, and an improved ability to pay for child healthcare and educational expenses.

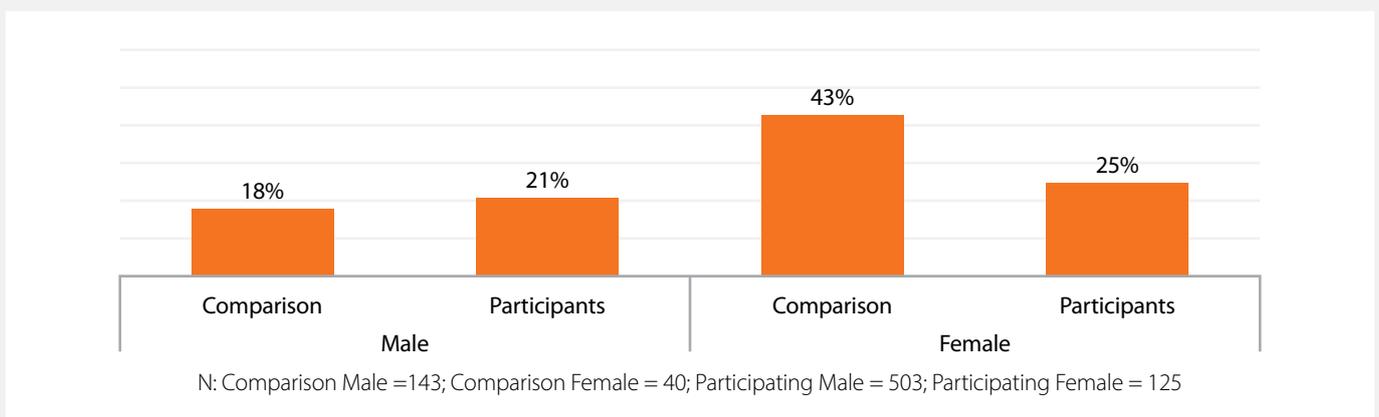
“The expense is much better. We do not have to borrow money and children go to school. We have a motorbike, and we eat more delicious food.”

– Female Farmer, Takeo (FGD)

“For me, there is enough ability to support my family. We do not have the same shortcomings as before, and the expenses are well managed with a good record. The project taught us about financial management.”

– Female Farmer, Takeo (FGD)

Figure 1. Percentage of male and female-headed households living in multi-dimensional poverty at endline



Self-reported income from heads of households back up these findings. Both participating male and female-headed households reported higher incomes from farming since the start of the project; however, the male-headed households reported an increase that was 36 ppts higher than comparison male-headed households, while the female-headed households reported an increase that was 45 ppts higher than comparison female-headed households. This evaluation finding suggests that the project has benefitted both male and female-headed households but the improvement in income for female-headed farming households has been especially significant.

In interviews, women in charge of households attributed their increase in income to a number of factors including the technical knowledge and inputs accessed through the project's iMSD approach. They also added that the project had made it easier for them to start farming vegetables, which has also contributed to higher incomes, better living conditions, and improved health outcomes.

Beyond the goal-level outcomes assessing economic empowerment, this evaluation also examined the project's impact on environmental and green growth goals. The iMSD approach built the capacity of 'green' input providers (ACs and Lors Thmey) and connected them with MASE2 farmers. The iMSD also generated 153 LAA (103) and FBA (50) jobs who are employed to provide technical advice for sustainable farming practices to farmers. The investment in and engagement of private sector partners also provides robust support for continued green economy management in balance with the environment.

Finally, the project supported the government initiative of natural resource management for a green environment by promoting and enabling farmers to pursue sustainable growing practices. In interviews, area project staff and partners at iDE emphasised the project's commitment to sustainable practices for vegetable farmers, primarily through GAP, to reduce the use of chemical fertilisers and pesticides, as well as how the project's design and implementation is geared towards improving the overall health of the environment in farming communities.

EFFECTIVENESS

MASE2 was successful in providing capacity to acquire inputs and increase agricultural yield through 'push' and 'pull' strategies.

The MASE2 project sought to increase the profitability of agricultural production and improve the livelihoods of vulnerable farmers in the project's target communities through the iMSD approach. To achieve this, the project provided support to farmers by 1) engaging and supporting the private sector to create market linkages ('pull' strategies), and 2) directly engaging farming households through the provision of trainings, inputs, and access to output markets ('push' strategies).

On the market-focused 'pull-side', contract and non-contract arrangements were centred on an inclusive business model aimed at increasing quality agri-puts to improve productivity and aggregation.

A positive sign pointing to the effectiveness of this work is the significant amount of investment leveraged by private sector partners, which totalled US\$1.7 million by the end of the project.

"I received the techniques, materials, a better life, and the know-how to manage expenses which was taught by the project. My revenues has increased. I gained material, knowledge, and increased income. I learned the techniques of growing, materials, market, jobs, and income. I am healthier and have received help from the organisation."

– FHH ID Poor1 Farmer, Takeo (FGD)

"MASE2 is very concerned about protecting the environment. It requires farmers to practice good agriculture (GAP) and always inspects farmers' cultivation related to the use of natural fertilisers, pesticides, and vegetable care."

– Area Project Staff, Takeo (KII)

"It is much better because farmers follow the technique and they have a lot of reduction in the use of chemicals such as fertilisers and pesticides. On the other hand, Lors Thmey and MASE2 have a common policy to guide farmers in growing vegetables with quality and environmental impact reduction in mind."

– staff member, Lors Thmey (KII)

Qualitative interviews with farmers, project staff, and other key stakeholders suggests that the project's direct engagement with farmers was extremely effective. Farmers reported that the trainings and inputs they received as a result of their participation in the project allowed them to increase their yields, reduce their use of pesticides and fertilisers, and ultimately increase their incomes and improve their standard of living.

MASE2 contributed to increased market linkages between local farmers and market actors:

The project was effective in establishing market linkages between private sector actors and contract farmers, all facilitated by ACs. Overall, the contracts generated with support from the project were viewed positively by all parties involved. Contract farmers (largely Outcome 1 farmers) almost unanimously reported that the increased access to markets they received as a result of their participation in MASE2 was the primary benefit of the project.

The project was less effective, however, in creating inclusive market linkages for smaller (mainly non-contract) farmers. This was largely due to the fact that these farmers often struggled to meet the GAP quality standard required for sale to private companies. Overall, both approaches appear to have been highly effective, with the majority of farmers and other key stakeholders across both outcomes highlighting the fact that the project provided equal opportunities to all groups. This is particularly true for women. A representative from the Commune Committee for Women and Children also felt that the project's focus on developing market linkages along with trainings in new, safer growing techniques contributed to the project's success.

"In the past, ACs have not had many contracted markets but after MASE II, the ACs have gained many of these and gained a lot of profits, especially in the last two years. One more thing is that our farmers have gained new growing techniques without using chemicals and know-how to grow properly through plans."

– Commune Committee for Women and Children

RELEVANCE

MASE2 was deliberate in its approach to incorporate and support vulnerable subpopulations, including women, poor farmers, and farmers with disabilities.

By working closely with local leaders and key stakeholders, the project actively identified and recruited people from these groups, resulting in approximately 30% of all project participants being poor farmers, and 33% female farmers, with female-headed households making up 10% of all participating households.

MASE2 was committed to including poor farmers, although ID Poor 1 farmers didn't benefit as much from the project as ID Poor 2 farmers.

ID Poor 1 participating farmers did benefit from an increase in farming income (Figure 2) and ability to pay for childhood expenses (Figure 3) at higher rates than ID Poor 1 comparison households, but they still fell below non-poor and ID Poor 2 participating farmers. Qualitative evidence suggests that very poor farmers (ID Poor 1) experienced more constraints such as a lack of land for production, limited eligibility for contract farming due to lower land ownership, and a higher level of risk aversion when it came to trying new farming methods or growing new crop types. These constraints may have limited their ability to manage and cultivate their own vegetable farms, however, the increased capacity of participating farms in their communities did present opportunities for them to work as farm labour.

Figure 2. Percentage of households reporting increased farming incomes by ID Poor status at endline

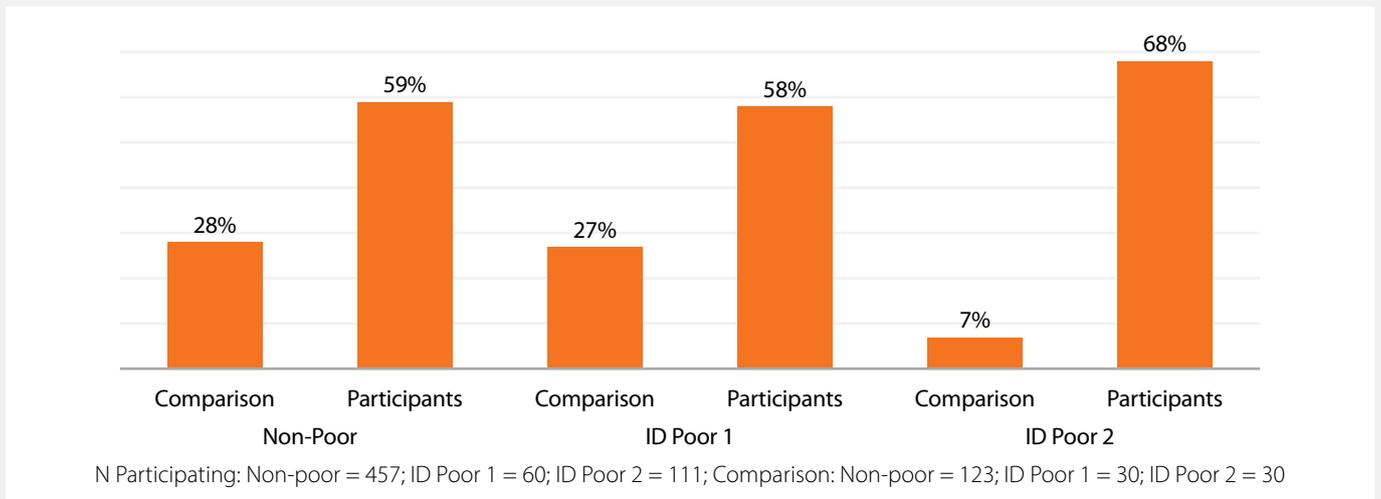
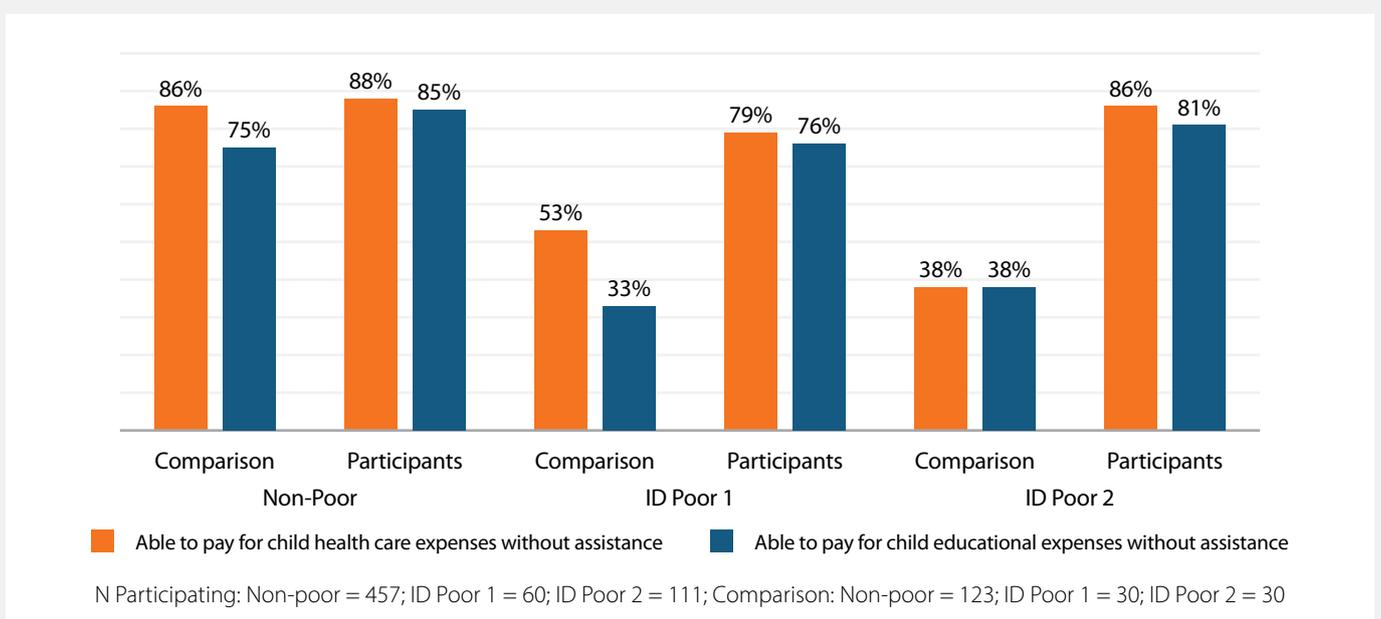


Figure 3. Ability to pay for child expenses by ID Poor status at endline



The project improved holistic gender equality and WEE outcomes.

Overwhelmingly, almost all key stakeholders (including male and female farmers, project staff, AC representatives, FBAs and LAAs, and Commune Gender Committee representatives) highlighted the fact that the project’s focus on providing equal opportunities to women and supporting gender-related trainings had not only increased women’s engagement with farming, but had also improved family dynamics, reduced incidences of gender-based and domestic violence, and increased women’s autonomy and decision-making power.

Participant farmers also felt that the project was supportive of farmers with disabilities. The project reached 29 farmers with disabilities, representing approximately 0.5% of all participating farmers.

Overall, the subpopulations targeted by the project reported higher levels of key goal indicators across all subgroups compared to comparison farmers, and this was particularly true for female farmers and farmers with disabilities. Both participating female-headed households and participating farmers with a disability were less likely to live in multidimensional poverty and more likely to report an increase in income from farming, therefore enhancing their ability to afford child healthcare and child educational expenses without assistance.

‘The project does not discriminate between men and women in participating, and for people with disabilities, the organisation (World Vision) pays attention to encourage them to participate in more projects.’
 – MASE2 farmer

MASE2 supported the government’s Green Growth Initiative. However, farmers still face challenges to achieving GAP certification.

A key theme of the project was to promote sustainable farming practices in line with government Green Growth and GAP initiatives. Project participants, staff, and partners all noted the project’s focus on promoting sustainable growing practices for vegetable farmers, primarily through GAP. The project worked with three private sector partners and eight agricultural cooperatives to assist farmers with increasing their yields of quality vegetables and aligning practices with GAP certification standards. This resulted in 12 GAP certificates awarded with 45 pending by project end. GAP certification allowed farmers to reduce their costs by cutting out expensive chemical inputs, but also enabled them to sell their vegetables for higher prices. However, the analysis revealed some serious limitations in certifying farmers as GAP producers as the process requires very strict standards which were often difficult to meet. This was largely due to issues such as the contamination of water sources by neighbouring farms, a lack of resources such as net housing (needed when growing without chemical pesticides), and the high cost of testing vegetables for certification.

EFFICIENCY

MASE2 spent \$708 per participant over the life of the project.

With an overall budget of US\$3,899,455 over five years, the project supported 5,502 participants (\$708/participant). Efficiency was improved by the US\$1.7 million investment leveraged by private sector partners (Table 2). Furthermore, agreements signed between ACs and private sector companies totalled US\$3,733,580 through to the conclusion of the contracts in June 2023, leveraging support to participating farmers beyond the project’s lifetime.

Qualitative evidence from project staff and partners affirms that the project was implemented efficiently, in line with project management plans, and that the budget appropriately addressed the needs of participants. Project staff felt that the financial aspects were clear and transparent throughout the project implementation and aligned with World Vision regulations and policies. No project staff provided any evidence that would suggest project efficiency fell below what was expected in the project plans.

Table 2. Value of Private Sector Investment Leverage (US\$)

Company Name	Investment Agreement Year	Total Investment		Description of Investment
		2020 – 2022	2022 – 2023	
The Eco Agri Centre Co., Ltd	2021 – 2023	\$795,513.00	\$610,896.38	Staff, transportation fee, contract farming and technical support
The Tropicam Fruit & Vegetable Co., Ltd.	2021 – 2023	\$160,160.00	\$416,850.00	Staff, transportation fee, contract farming and technical support
Baitong Sros Co., Ltd.	2022 – 2023	N/A	\$8,748.00	Transportation fee and contract farming
Funan Farm Green Shop	2022 – 2023	N/A	\$2,352.00	Transportation fee and contract farming
Srok Srae Green Shop	2022 – 2023	\$5,701.00	N/A	Two staff for technical support/capacity building, CAM-GAP certification processes and other operational costs
Agricultural Cooperative Investment on Safe Vegetable Business (7 ACs)	2020 – 2023	\$729,131.59	\$901,740.00	LAA incentive, transportation fee, contract farming, and other operational costs
Agricultural Cooperative Investment on Agri-Input Businesses (10 ACs)	2020 – 2023	\$11,028.44	\$88,004.07	LAA incentive, transportation fee, other operational costs
Total		\$1,701,534.04	\$2,032,046.45	Agreements signed between ACs and private sector companies totalled \$3,733,580.49 through to the conclusion of contracts in June 2023.

CROSS-CUTTING THEMES

GENDER EQUALITY AND WOMEN'S EMPOWERMENT:

Broadly, the project successfully contributed to the ability of women to access resources to succeed economically, especially in vegetable farming, as well as improving agency and participation in household decision making. Yet, these gains have not translated into broader economic involvement in the community or changed deeply rooted attitudes towards women's economic participation.

Economic advancement

Overall, the project's targeting and support of female farmers and female-headed households contributed to higher incomes and job opportunities, with 59% of female-headed households reporting that their incomes had improved since the beginning of the project. Female farmers described how the project contributed to women's economic advancement by enabling them to find jobs and increase their income.

Improved access but challenges remain

The project supported 1,820 female farmers, including 157 heads of household. Additionally, the project employed 12 female FBAs (25% of all FBAs) and 27 female LAAs (26% of all LAAs). In discussions, female participants agreed that the project had provided access to inputs, technical advisory support, and markets through its iMSD approach.

However, women still faced challenges related to joining the project such as having more obligations within their households, or if the work required heavy manual labour or travelling long distances.

Interviews with female farmers and representatives from gender councils highlighted that the trainings offered by the project had increased men's participation in housework, childcare, and other tasks which previously fell almost exclusively to women. However, managing paid and unpaid care work remains a significant challenge for women.

'The project has helped women find jobs and income. The project helped solve the problem of better living conditions and helped women become more knowledgeable and courageous by providing training. The project provides farmers with agricultural equipment, especially for the disabled, and training.'

– FHH Farmers, Takeo (FGD)

'The project empowered both men and women equally. Women were able to participate in the training, sharing ideas, looking for markets and farming activities. The female farmers received the same support.'

– Female farmer, Kandal (FGD)

'Yes, the main challenge is we couldn't go far from home because we have other responsibilities at home and this role doesn't give any income and we also spend our own money for travelling to visit the farmers as well.'

– Female FBA, Takeo (KII)

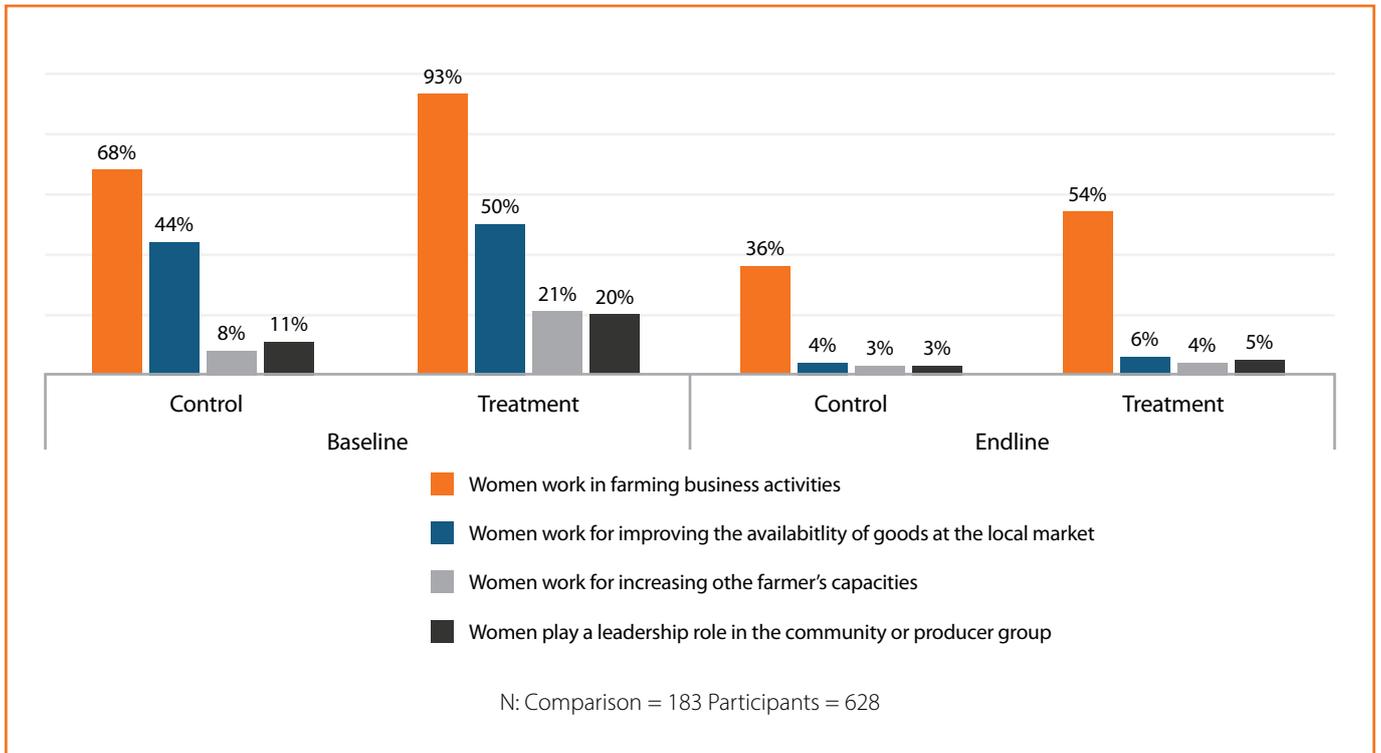
'Women [working] in my area is still low because they are busy with other work, such as household chores and taking care of children.'

– Male Farmer, Kandal (FGD)

Agency

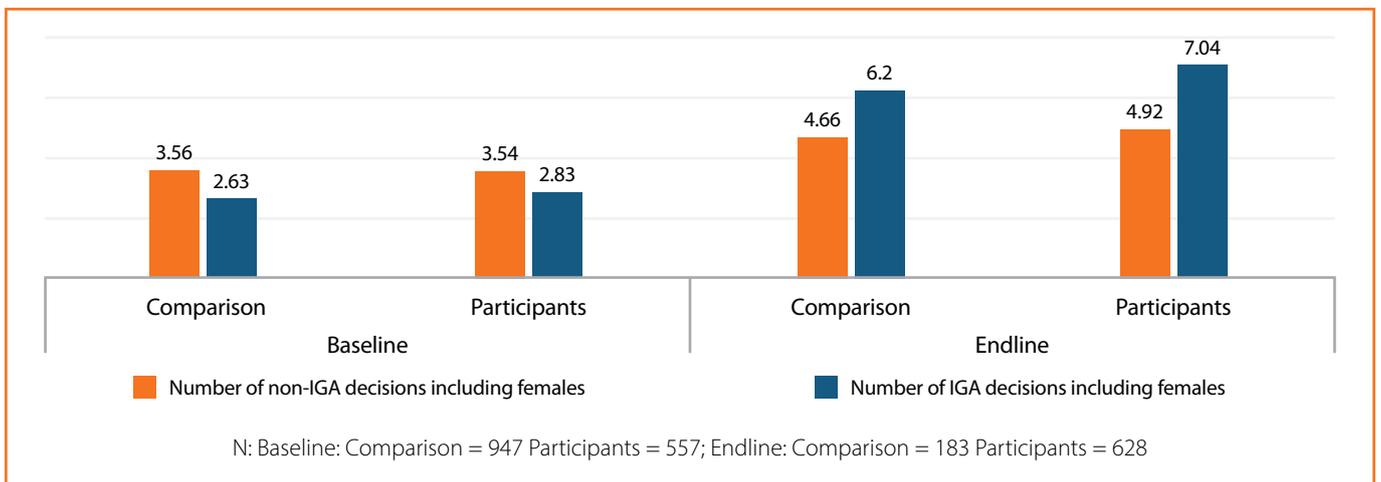
By project end, participating females had taken up significantly more rewarding roles related to vegetable farming, however, the overall average up-take by females had declined from baseline to endline. As shown in Figure 4, this decline was across the board, although project participants fared slightly better than the comparison group. The reason for this overall decline may have been related to the COVID-19 pandemic, which increased the burden of care and housework roles on women with schools closing and households forced into lockdown.

Figure 4. Rewarding roles taken up by women from baseline to endline



Women in treatment and comparison households reported participating in a similar number of household decisions at baseline, including approximately 3.5 decisions related to non-income generating activities and approximately 2.7 decisions around income generation on average. By endline, women in MASE2 households participated in over 7 decisions related to income generating activities by endline, whereas women in comparison households participated in more than 6 related to income generation on average. This suggests that the MASE 2 project’s focus on female empowerment is translating to female farmers improved position within household decision making structures, particularly with regards to decisions around household income generation.

Figure 5. Women's decision making in non-IGA and IGA activities from baseline to endline



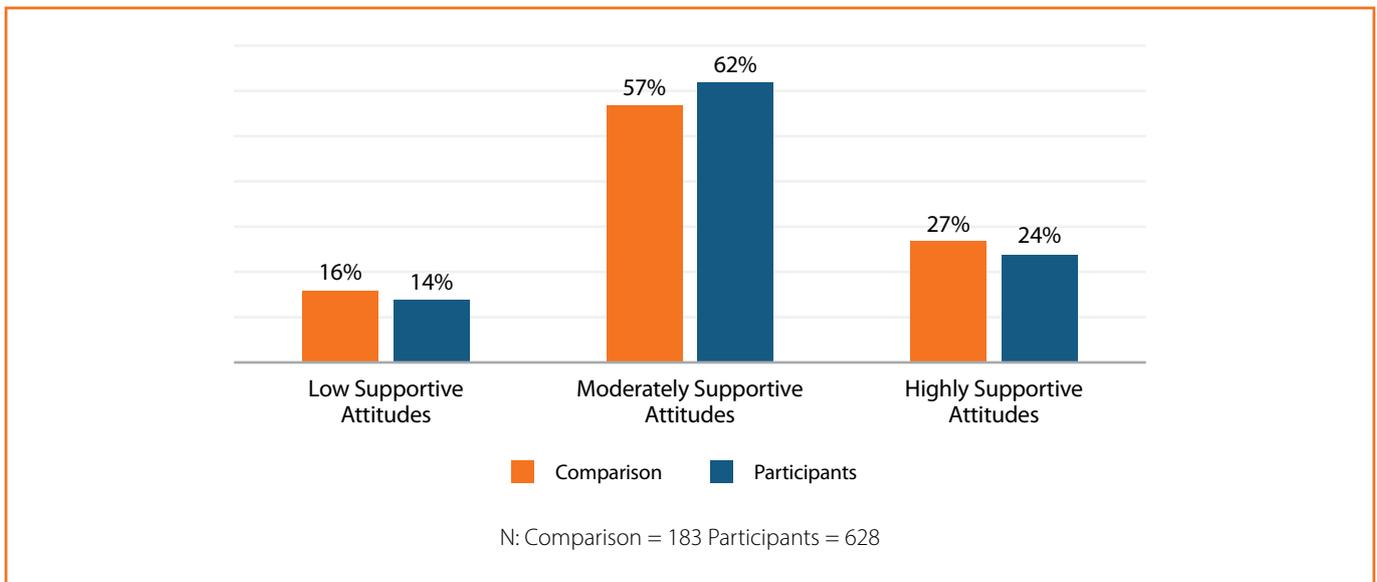
Improvements in the agency of women who participated in the project were also confirmed in discussions with female farmers. One representative from an AC described how women had previously been ‘too afraid or shy’ to engage with the AC, and how their confidence had grown through involvement with the project. This new-found confidence led to women pursuing vegetable farming livelihoods, increasing their incomes, managing their finances, and making more decisions.

‘The participation of women made them braver. They are able to earn more income and better manage their finances for their family.’
 – Female farmer, Kandal (FGD)

Equitable systems

Despite the gains made in women’s agency and access, the evaluation findings suggest that women’s empowerment didn’t translate into significantly improved attitudes towards women’s economic participation. The baseline assessed the extent to which men and women were supported or unsupported by their families to participate in horticulture activities; it revealed that only 10.4% of females and 6.8% males felt unsupported. While the endline survey asked project participants and comparison groups whether they experienced low, moderate or highly supportive attitudes. Overall, households who participated in the project showed no substantial differences in their attitude towards women’s economic participation, with only 24% being highly supportive of women’s economic participation, compared to 27% of the comparison (Figure 6).

Figure 6. Proportion of respondents with supportive attitudes towards women's economic participation



MASE2 supported the Cambodian government’s Green Growth Initiative

The project supported green investment and green job creation primarily through the employment of LAAs and FBAs, investment in ACs, and the involvement of Lors Thmey. The iMSD approach built the capacity of green input providers (ACs and Lors Thmey) and connected them with the MASE2 farmers. The investment in and engagement of private sector partners also provided robust support for continued green economy management in balance with the environment. The project supported the government initiative of green environment and natural resource management by promoting and enabling farmers to pursue sustainable growing practices.

SUSTAINABILITY

MASE2's iMSD approach built an inclusive market system which should be sustainable after project activities, especially for contract farming

Key project stakeholders, including project staff, representatives from Lora Thmey, and ACs, all agreed that the project's iMSD approach will contribute significantly to the sustainability of the project. In interviews, representatives from ACs, LAAs, and FBAs reported a high degree of job satisfaction, emphasising that they planned to continue in their roles beyond the project. Farmers also reported that they expect the knowledge and market linkages provided by the project to carry on benefitting them after the project ends. Like the other stakeholders, private sector partners also expressed a willingness to

continue working with these communities after the project, provided that farmers continue to grow and meet the required quality standards.

Most respondents did, however, report that they expected contract farming activities to be more sustainable than non-contract farming. The 351 contract farmers participating in the project represent 21% of all the participants. Farmers, LAAs, and FBAs were more confident about the sustainability of contract farming activities because these partnerships provide farmers with stable fixed prices – an important motivating factor for farmers.



Mrs. Leang Sron, a woman champion, a Local Agriculture Agent, and a female farmer, with her family.

LESSONS AND RECOMMENDATIONS

Based on the analysis and findings presented in this report, the research team has generated the following recommendations for future programming considerations:

RECOMMENDATIONS FOR A STRONGER MARKET SYSTEM



Where possible, seek private partnerships with a social mission.

The private sector partners had made a sizable investment in the inclusive business model, however, most of them reported that they had not yet realised a profit from these activities. Although most businesses may not have a clear social mandate, many of the partners interviewed for this analysis noted both social and financial incentives for working with ACs or project farmers. Continuing to identify and foster relationships with enterprises or organisations interested in the social benefits of the project (along with the financial) will be important for long-term sustainability.



Layering of interventions.

Although identifying partners with a social mission is important for sustainability, it is also vital that they realise a profit. To assist with this, future projects could consider adopting a layering approach, where larger, more commercially oriented farmers are recruited first as they are more readily able to consistently produce high quality products for market. Once private sector partners have been recruited and have realised the profitability of these contracts, the project can slowly build up the capacity of smaller farmers (particularly those from vulnerable subgroups) and allow them to engage under these contracts as well. Under this model, the participation of larger, more commercially oriented farmers could serve as a buffer to ensure that inevitable fluctuations in supply or quality faced by smaller farmers does not severely impact the profitability of private sector partners, while still allowing smallholder farmers from vulnerable groups to benefit from contract farming arrangements.



Investment in transportation and storage capacity for ACs.

Some private sector partners noted that ACs did not have the storage or transportation equipment to maintain vegetable quality for sale. As ACs are key actors in linking poor farmers to output markets, their ability to maintain output market relationships is pivotal to the sustainability of the market linkages created by the project. Therefore, investment in quality equipment for this segment of the value chain is an important factor for sustaining impact. Future programming should consider instituting minimum standards for storage and transportation for partner ACs or providing pathways for ACs to access better equipment through targeted loans or subsidies.

RECOMMENDATIONS FOR A STRENGTHENING GREEN AGRICULTURE



Promote environmental assessments to see viability of GAP certifications (soil, land, water) and create community-level solutions.

Several farmers described how difficult it was to receive GAP certification because of existing pollutants in their environments. Future programming could include environmental probes or assessments of viability for GAP certification, which will more robustly identify constraints for farmers who want to pursue certification. This approach acknowledges that the constraints to meet environmental standards for certification often need to be addressed at a community level. Individual farmers, even if they use all GAP practices on their own vegetables, are still limited by environmental pollution from neighbouring farms in water and soil. This problem requires a community-level approach, which engages all farmers whose farms could affect one another to buy into using GAP practices.



Financial support for testing vegetables for GAP certification.

Some farmers and private sector partners noted the high cost of testing vegetables as a constraint to verifying produce as GAP certified. To improve access to GAP certification, future programming should conduct additional research into this area to identify commercially viable options with private and public sector actors. Additionally, the project should consider strengthening access to finance by providing loans to farmers. To include more vulnerable farmers who not able to take out loans, the project could potentially subsidise the cost in the short-term. Another option currently under consideration is to work with government and AC actors to develop the potential to provide GAP certification at the AC level, where ACs aggregate farmers' vegetables for group testing (thereby reducing costs to individual farmers).

RECOMMENDATIONS FOR INCLUSION OF VULNERABLE GROUPS



Promotion of leadership positions or rewarding roles reserved for women.

The number of women who reported participating in rewarding roles declined from baseline to endline. Some of this was a result of less women participating in farming as a business, but much of the decline was in areas related to local markets, as well as leadership roles in community or producer groups. As discussed, the decline is likely related to the COVID-19 pandemic which placed a disproportionate burden on women to take up additional household and caretaking duties. Future programming can prevent a similar drop off in participation by maintaining a minimum number of spots for women in leadership positions, as well as making them paid positions.



Provide additional solutions to address time poverty among female farmers.

While there was some qualitative evidence of increased male engagement in care work, many women blamed time poverty due to care and household duties for the decline in female economic involvement. To address this, future programming could do more to work with project partners to provide additional support to women, including providing community-based or subsidised childcare options for female participants. For example, in the informal economy where there are limited formal childcare options, cooperatives could provide a fee for this service. For vulnerable households, projects could consider subsidising this in the short term.



More robust strategies for inclusion of very poor farmers without land.

The main constraint identified in this analysis was a lack of land which prevented very poor farmers from participating in contract farming (which requires higher outputs). To some extent, this was mitigated by the fact that very poor households were able to work as farm labour on other farms instead of growing their own produce. Future programming could focus on formalising this process through targeted capacity building and formal employment connections to commercial farms that provide more steady employment. An additional consideration could be access to subsidies for rented plots, which could decrease over time as the farmers generate income.



Provision of additional inputs for ID Poor 1 farmers.

The quantity of inputs MASE2 farmers received was proportionate to the amount of land they had available for farming. As ID Poor 1 farmers generally reported much less land than ID Poor 2 or non-poor farmers, this meant they received fewer farming inputs. As ID Poor 1 farmers also likely have fewer resources to purchase their own inputs to supplement those received from the project, it may be beneficial for the project to provide them with comparatively more inputs initially to help them overcome the disproportionate barriers they face when it comes to scaling their farms.



Targeted approach to lower risk aversion for very poor farmers.

Very poor farmers live close to (or often under) the poverty line, meaning the relative effect of a failed harvest makes up a much larger share of household income. Future programming should consider ways to alleviate this risk for farmers by providing some 'safety net' for them to try and explore new techniques and crops. Potential solutions could be cash transfers conditional on implementation of promoted techniques or productive asset transfers that provide regular supplementary income such as animal assets (chicks or piglets) for raising livestock, or goods to start a local store.



Cooperative marketing for bulk supply of Good Agricultural Practice (GAP) certified vegetables has been a highlight of this project.

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