



FINAL EVALUATION OF UPSCALE AND FES PROJECTS FROM JANUARY 2017 TO DECEMBER 2021, CAMBODIA



PREPARED BY:



CAMBODIAN RESEARCH AND CONSULTANCY CENTER CO., LTD.

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ACRONYMS

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| AC | Agricultural Cooperative |
| ADG | Aide Au Development Gembloux |
| AE | Agroecology |
| AFDI | Agriculteurs Français et développement international |
| AIMS | Accelerating Inclusive Markets for Smallholders |
| ALISEA | Agro-ecology Learning alliance in South East Asia |
| BUAC | Battambang Union of Agriculture Cooperatives |
| CIRD | Cambodian Institute of Rural Research and Development |
| CRF | Cambodia Rice Forum |
| DACP | Department of Agriculture Cooperative Promotion |
| DRR/CC | Disaster Risk Reduction/Climate Change |
| ECOLAND | Eco-system Services and Land Use Research Center |
| FA | Farmer Associations |
| FAEC | Facilitation Association of Economy for Cooperatives |
| FCFD | Federation of Cambodian Farmer Organization for Development |
| FES | Food and Economic Security |
| FGD | Focus Group Discussion |
| FO/FA | Farmer Organization/Farmer Association |
| FO-Fed | Farmer Organization' Federation |
| GHGs | Greenhouse Gases |
| GRET | Groupe de Recherches et d'Echanges Technologiques |
| HH | Household |
| IGA | Income Generating Activities |
| ISC | Irrigation Service Center |
| ITC | Institute of Technology Cambodia |
| JSF | Joined Strategic Framework |
| JSG | Joined Strategic Goal |
| KII | Key Informant Interview |
| LC | Louvain Cooperation |
| LD | Louvain Development |
| M&E | Monitoring and Evaluation |
| MAFF | Ministry of Agriculture, Forestry and Fisheries |
| MB | Mlup Baitong |
| MF | Model Farmer |
| MFT | Master Farmer Trainer |
| MODE | Minority Organization for Development and Economy |
| NCD | Non-Communicable Diseases |
| NGO | Non-Government Organization |
| 2NTPF | Non-Timber Forest Products |
| PDAFF | Provincial Department of Agriculture, Forestry and Fisheries |
| PGS | Participatory Guarantee Systems |
| RHs/HCs | Referral Hospitals/Health Centers |
| RUA | Royal University of Agriculture |
| SA | Sustainable Agriculture |
| SHG | Self-Help Group |
| SO | Specific Objective |

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|------|--|
| SRP | Sustainable Rice Platform |
| SWOT | Strengths, Weaknesses, Opportunities and Threats |
| UAC | Union of Agriculture Cooperative |
| UC | Union of Cooperative |
| UCL | Université Catholique de Louvain |
| WWF | World Wildlife Fund |

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EXECUTIVE SUMMARY

The Uni4Coop program is implemented by Louvain Cooperation (LC) and Eclasio. Uni4Coop was designed to maximize synergy between the two projects (UpScale and FES), its key actors and the goals. The program has 2 Specific Objectives: (1) SO1 implemented by Eclasio under the UpScale project; and (2) SO2 implemented by LC under the FES project. Late in 2019, COVID 19 broke out affecting the beneficiaries of the UpScale and FES projects. Among the impacts of the pandemic includes the reduction in income and production, flow and the trading of products. During the height of the pandemic, the farmers experienced difficulty transporting their products to the markets. The evaluation was conducted to assess the achievements of Uni4Coop and its contribution to JSF Cambodia, mainstreaming of gender and environmental aspects, identify critical areas for improvement in relation to the design, implementation and reflect on partnership relations with the privileged users of the program.

THE UPSCALE PROJECT

The Cambodia's UpScale (Upgrading Strategy for Small-Scale Farmers) project provides development support services to AC. The UpScale project is implemented in partnership with a number of local federations, NGOs and institutions: (1) Facilitation Association of Economy for Cooperatives (FAEC); Cambodian Institute for Research and Rural Development (CIRD); Irrigation Service Center (ISC); The aim of SO1 is to promote food sovereignty, to create favorable conditions to enable small-scale farmers to defend their rights and interests, get proper income from sustainable agricultural activities to durably maintain their living conditions above poverty line, empower women in their communities, and enable youth to live with dignity in their rural areas. The project also creates a sustainable seed supply system in which (1) farmer producers are able to produce high certified standard quality of seed, and (2) have access to market.

Relevance. The UpScale Project provides a model for technology dissemination through a Farmer-to-Farmer extension, where the farmers teach fellow farmers. The farmer-to-farmer extension also transmitted technologies through learning-by-doing and promotion of local innovations. The project provides a space to women and youths to participate in the decision-making in ACs and UACs to improve their business performance. The participation of youths brings to the ACs and UACs manpower that have higher education and can contribute to a more effective running of the business.

Effectiveness. The effectiveness of UpScale project is assessed based on the achievement of SO1 indicator and the five results: (1) Farmers and their family improved sustainably their production through better natural resources access and management; (2) Organized small-scale farmers increase the total value of their production through better access to market and allows the creation of job and business opportunities; (3) FOs and their members improve their access to finance to develop production and collective commercialization; (4) FO improve skills and capacities to manage their structures and advocate for SSFF interest including those for women and youths; and (5) Actors supporting small-scale family farmers and their family' members are sharing and improving their practices and approaches.

Achievement of SO1 Indicators (Small-scale family farmers and their Family Members Strengthen their capacities to achieve food sovereignty, to defend their interests to generate pro-poor growth). There are two indicators under SO1: (1) Income of the targeted farmers increases more than the average income of similar population in the framework of the program; and (2) Increase of Women and Youth among FAEC Operational Actors. The project has achieved all the targets under SO1. The income of the beneficiaries has increased by 35.3% which is higher than the target of 25%. The project also exceeded the target of having at least 50 % of women and 40% of youths involved in FAEC operations.

Under SO1, there are five Results: (1) Farmers and their family improved sustainably their production through better natural resources access and management; (2) Organized small-scale farmers increase the total value of their production through better access to market and allows the creation of job and business opportunities; (3) FOs and their members improve their access to finance to develop production and collective commercialization; (4) FO improve skills and capacities to manage their structures and advocate for SSFF interest including those for women and youths; and (5) Actors supporting small-scale family farmers and their family' members are sharing and improving their practices and approaches

Result 1: Farmers and their family improved sustainably their production through better natural resources access and management. There are three indicators under this result: (1) Number of family farmers having access to on-farm small irrigation system; (2) Number of AE techniques adopted by targeted family farmer's increases; and (3) Percentage of production' quantity increases for rice, rice seed, chicken, vegetables. The project has exceeded the target of 25 families to have access to irrigation. The small scale irrigation put up by ISC has empowered the farmers to improve their production. About 41.5% of the respondents have adopted AE practices representing an increase of 235%. This exceeded the target of 70% increase of farmers who adopted the AE techniques. The farmers posted an increase in production of paddy rice by 11.1%; rice seeds = 86%; chicken = 2.39%; and vegetables = 66.18%. Although in general the production of farmers have increased, the level of increase is below the targeted level (i.e. 30% increase for rice; 200% for rice seed; 100% for chicken; and 100% for vegetable). The target set by the Project Design appears to be too high and unrealistic. The target increased production of paddy rice by 30%, through SRI and use of good quality seeds, means that the farmer should reach approximately 5.41 t/ha which is deemed very high for Cambodian farmers. This is very high compared with the production level of other countries. The assessment by the project in 2017 found out that the farmers did not make money from paddy production. The project then decided to support them in valorizing by-products from paddy rice instead which are used as input to Bokashi type of fertilizer.

Due to exposure and vulnerability of the farmers to climate change (e.g. flood and drought), the project supported the farmers with climate-resilient farming practices through access to irrigation or innovative practices such as using seeders and keeping spare seeds for replanting when losses occur.

Result 2: Organized small-scale farmers increase the total value of their production through better access to market and allow the creation of job and business opportunities. All the indicators under this result were achieved by the project. There are two indicators under this result: (1) Percentage increase of quantities of products sold collectively by agriculture cooperatives; and (2) Number of cooperative scoring over 80/100 on SCM grid. The input sold by the ACs has increased by 410% which exceeded the target. The project has met its target of having 20 FOs that receives SCM grid score above 80/100. The target for the program is for at least 20 ACs to reach a target of 80 points. The SCM scoring was applied in ACs assisted by MB in Kampong Thom province.

Result 3: FOs and their members improve their access to finance to develop production and collective commercialization. There are two indicators under this result: (1) Access of ACs to Finance for Collective Commercial Activities; and (2) Percentage of AC capital increases during the program. All the targets under this Result were achieved. The project has met its target of facilitating more than 28 ACs to access loans from the financial institutions. There were 28 ACs who received loans from the financial institutions. FAEC provided training to strengthen the capacity of the AC Committee and provided direct coaching on the production of business and marketing plans, as well as other documents required by the Bank. The project has exceeded its target. More than 30% of the total FAEC members have increased their capital.

Result 4: FO improves skills and capacities to manage their structures and advocate for SSFF interest including those for women and youths. This result has three indicators: (1) Amount of qualified Service Providers of FAEC /FCFD trained and operational; (2) Amount of FAEC /FCFD annual services delivered to FOs and individual members; and (3) Increased percentage of FAEC / FCFD AC members. A total of 138 service providers of FAEC/FCFD were trained which exceeded the target of 55 Service Providers. FAEC provided 150 services to the FOs and individual farmers. The project has supported two Farmers' Organizations federations (FAEC and FCFD) for sustainable seeds supply service to their members. The project was not able to meet its target of increasing the membership of FAEC and FCFD. The project has achieved only 48% as against its target of 50%. The shortfall was triggered by the withdrawal of the membership of ACs due to governance issues. FAEC at that time was embroiled with a corruption controversy. This issue was confirmed by an audit conducted and was reported in the Board of Director's Meeting.

Result 5: Actors supporting small-scale family farmers and their family members are sharing and improving their practices and approaches. This result has the following target indicators: (1) number of studies published during the program; (2) number of collaboration with other actors on exchanges of experiences and capitalization of knowledge processes developed during the program. The target 10 studies published during the program are achieved. The project also established 20 collaborations which exceeded the target of 10 collaborations.¹

Efficiency. The activities of UpScale project were efficiently implemented. The targets were achieved according to plan. The program coordinator assures a complementary and synergy among the component to save funds and the expenses were strictly monitored according to financial procedures. Eclasio works and coordinates with donors and other supporters to avoid redundancy and make an efficient use of staff.

Sustainability. The sustainability of the project considers the following areas: (1) technical; (2) financial; (3) social; (4) environmental.

Technical Sustainability. The technologies introduced by the project are considered practical and appropriate to the site. The approaches and methods are designed to be adapted to beneficiary capacities and financial means.

Financial Sustainability. The activities can be sustained as the ACs has started a business and building their capital. Trainings have been provided to the ACs which enables them to access loans from the financial institutions.

Social Sustainability. The increased participation of women in the program improves the social and gender equity in decision making processes in rural areas. The program increases rural participation in local governance, improve service delivery, speed-up agri-business development, overcome scale problem, exercise influence on policy issues.

Environmental Sustainability. The famers are expected to sustain the AE practices as they realized the benefits of agroecology. The farmers practiced proper management of chemical agriculture waste and proper way of using the chemical fertilizer, as well as composting.

Change in the Behavior Toward Sustainable Agriculture and Impacts to Production. There is already an increased awareness of the farmers on the use of organic inputs due to the interventions of the project.

¹ FAEC Report for Ending UpScale Program, Item 5.1, p. 9 |

Some of the farmers prefer to take a gradual adoption of organic fertilizers, and learn the effects through experimentation.

Factors Influencing the Transition to Agroecology Practices. Some of the factors that influence the transition to AE practices include the following:

- Awareness and knowledge of the AE technologies
- Motivation, willingness and interest of farmer beneficiaries to adopt the AE technologies due to the promotion of the AE technologies by the Farmer-to-Farmer Extension system. The farmers reported that it was the Extension Workers who encouraged them to adopt the AE technologies. The Extension Workers will be effective agent of bringing the technologies to the farmers who have no prior knowledge of the AE technology.
- Personal experience of better production and income. The experience of using the AE will motivate the farmers to further use the AE technology.
- Farmers perception on the benefits of AE technology used by other farmers. The farmers tend to follow the farmers who succeed in using the AE technologies.
- Market of AE products. The premium market price of AE products will attract the farmers to adopt the AE technology. The farmers hesitate to invest on new technology if there is no price differentiation against the conventional products.

Contribution of the Project to Joint Strategic Framework (JSF). The project contributes to Joint Strategic Goals 1, 5 and 6.

Joint Strategic Goal 1 (Contribute to rural development and to food, nutritional and economic security of vulnerable rural populations):

- Increased Production. The production and productivity of target beneficiaries have improved, particularly on rice seed, paddy rice and other agricultural crops, chicken and other livestock.
- Competitiveness through Collective Trading. The ACs are linked to the buyers to negotiate for better prices.
- Access to Financing. The formation of ACs and SHGs made the distribution of the financial assistance more efficient.
- Link to Value Chain. The small scale farmers were able to link to the private companies in the trading of their products.
- Better Governance. The farmers were able to articulate their concerns and problems to the government agencies concerned through FAEC and FCFD.

Joint Strategic Goal 5 (Ensure and improve access to knowledge, improve research and stimulate innovation in order to contribute to development). The project encouraged research and educational institutions to conduct practical research appropriate to the site.

Joint Strategic Goal 6 (Improve Environmental protection and Climate change resilience). The project contributed to raising awareness on the environment through meetings and training. These are embedded in the promotion of the AE. The project has institutionalized the adoption of climate mitigation measures such as the use of cover crops, proper disposal, and use of organic fertilizers which ultimately mitigate the impacts of agriculture to the environment.

Lessons Learned. Several lessons can be drawn from the implementation of the UpScale project:

- The self-reliance of the Agricultural Cooperatives is still not assured due to limited support from the members on its income generating activities (i.e. farmers selling their products to the private companies instead to the ACs and some of the farmers purchased inputs directly from the supplier companies instead of buying through the ACs).
- Organizing a Farmer’s Forum provides an opportunity for the farmers to be heard by concerned government agencies.
- Learning on-site is more effective for the Farmer-to-Farmer extension system.
- Agricultural commercialization can only be realized if the enabling organization, such as FAEC, will be supported financially by the beneficiaries of its services
- The SRP standard is an effective tool to promote agro ecology
- A Farmer-to-Farmer extension provides an efficient way of promoting agro ecology
- FAEC and FCFD helps in ensuring that the farmers use good quality rice seeds in the production system of farmers.
- The predominance of “Free Rider” mentality among the Agricultural Cooperatives will undermine the effective delivery of services. As conceptualized by the project, FAEC is supposed to facilitate the linkage of the ACs to the private companies. With the controversies surrounding the operation of FAEC, the organization was not able to render its services effectively and were not able to collect the necessary fees from the ACs.
- Farmer-to-Farmer platform provides an effective tool in sharing knowledge among farmers.

Recommendations. Based on the experience, the following are recommended for the improved implementation of similar project in the future:

- Train the young/educated workers of ACs (committee members and youths) on computer literacy
- Organize AC membership seminars in communities
- Implementation of Volunteer Programs. The project will accept volunteers targeting fresh graduates to do voluntary works in the ACs. In return, they will gain experience and skills that they can use in working with the companies or other organizations.
- Conduct financial literacy training to the farmers and members of the ACs/SHGs. The training will focus on household budgeting, savings, prioritization of budget and prudent spending, investments to ACs or income generation, paying the debts, etc.). The financial literacy aims to prevent indebtedness of the farmers. There are two major kinds of loans: productive and unproductive loans. Productive loans are used to enhance productive activities. Unproductive loans are used to respond to a need for liquidity for households facing emergency situations. Offering unproductive loans to borrowers is riskier for credit providers as they do not generate any income. It has been observed that borrowers also regularly use productive loans for unproductive purposes. Regarding loan sizes, unproductive activities represent an even larger proportion than productive activities, with 72,5% and 27,5% respectively. On average, unproductive loans have a larger size than productive ones. Martin *et al.* (2020) noted that the primary cause of borrowers’ indebtedness is a lack of financial literacy. The percentage of the debt ratio has risen drastically compared to domestic income, raising concerns about over-indebtedness. In 2012, microfinance investors stated that “over-indebtedness has become among the most serious risks of microfinance today”. About 22% of clients in microfinance-saturated areas were insolvent or over indebted (Liv, 2013).²
- Training on food processing (meat, fish and vegetables)

² Martin, N.; de Leener, P.; Peeters, A. 2020. *The link between microcredit and rural household economy: A case study in Kampong Thom province, Cambodia.* Louvain Cooperation. Année académique: 2019-2020.

- Assist the AC/Producer Groups putting up of slaughterhouse and slaughterhouse management and meat quality inspection
- Conduct a survey and groundwater mapping that are contaminated with pesticides
- Establish Community Fish Refuge Areas and Development of Communal Forest. The Community Fish Refuge will be established in a natural body of water (ponds, reservoirs or pools) which will serve as breeding grounds of fishes. These will be protected by the community and will supply the fingerlings to the areas that are open for fishing.

THE FOOD AND ECONOMIC SECURITY (FES) PROJECT

The project aims to improve the living conditions of vulnerable rural populations in a sustainable way by focusing its interventions on two main components: Food and Economic Security (FES) and Non-Communicable Diseases (NCDs). The FES program created structures that can help farmers to develop their activities and find both technical and financial support. The farmer groups are initially mobilized into Self-Help Groups and then they are transformed to Agriculture Cooperatives. The project provide support on the four components: (1) enhancing capacity and development of communities, small holder farmers and building functional organizations (Agriculture Cooperatives); (2) Improving access on food quality and safety by promoting and enhancing agro-ecological (AE) practices, enhance the quality & safety of seed & crop production, promoting consumer awareness on AE products and climate change impacts and adaptation strategies; (3) Promotion of livestock farming; and (4) Linking local farmers, suppliers and markets.

The FES project has three synergies: (1) Synergies with Belgian ACNGs and Eclasio; (2) Synergies with universities and institutes; and (3) synergies between health and the food and economic security components. LC takes the lead on JSF in Cambodia and collaborates with GRET, ITM, ALISEA, UCLouvain and partners with FAEC, RUA-ECOLAND Research Center and Mlup Baitung (MB). It organizes JSF coordination meetings among JSF members and Strategic Dialogue meeting every year.

Relevance. The Food and Economic Security (FES) program aims to create structures that can help farmers develop their activities and find both technical and financial support. FES help the ACs in accessing credits by linking the ACs with microfinance and banking organizations, improve the skills of the famers in managing their capital and pay their debts and development of business plan.

Effectiveness. The effectiveness of the project is measurers in terms of the achievement of the project on its target indicators. FES focused on SO2 with the following indicators: (1) Households having enough food to eat all year around; (2) Increase of women beneficiaries' income above the average level; and (3) Number of new registered Agricultural Cooperatives (ACs) in the target areas. Most of the target indicators under SO2 were achieved. The SA technologies have improved the yield and income of the farmers. There are only few who invested their surplus to productive endeavors (e.g. expansion of the business, buying equipment, buying lands, etc.).

The internal monitoring made by the project indicates that there are 67% of respondents, who did not experience food constraints. The endline assessment indicates a higher number of respondents have enough food to eat (97.4%). The number of FES beneficiaries who lack food to eat has decreased to 2.6% compared to the baseline (which stood at 30.8%). The income of female-headed households has improved by \$12.10 compared to the baseline with a 10.2% average increase. The on-farm income of female-headed households posted a 51.07% increase. There is a very low increase from non-farm income (2.3%). The target of having 5 new registered Agricultural Cooperatives (ACs) has been achieved. The newly registered ACs received many trainings and coaching by project staff and PDAFF staff.

The project has the following five results: (1) The institutional strengthening of local partners and SHGs allows improving their technical capacity in relation to supporting small-scale farmers and their management capacity; (2) SHG members that applied a sustainable agricultural approach, improved their level of organization and increased their food production; (3) The revenue of the targeted vulnerable beneficiaries is improved; (4) Improve environmental protection and climate changes awareness and resilience; and (5) Evidence-based information, studies and operational research on farmer's issues are conducted and results are disseminated among farmers and key stakeholders in the sector.

Result 1: The institutional strengthening of local partners and SHGs allows improving their technical capacity in relation to supporting small-scale farmers and their management capacity ensuring their sustainability. This result has the following indicators: (1) Increased percentage of partner capacity rate; (2) Number of short studies or assessments conducted by FAEC; and (3) Number of SHG leaders trained in finance, management and member needs assessment. The overall capacity building index score for MB for the period from 2019 to 2021 remains the same (87%). The TAPE (Tool for Agroecology Performance Evaluation) was used to diagnose performance of agroecological systems across many dimensions and better representing the benefits and trade-offs of different agricultural systems. The project also achieved the target of conducting studies. The project has achieved the target of providing training on finance, management and members' needs assessment. The target for this indicator is 48 SHGs' leaders that are trained on finance and management. The project has provided training to 79 SHGs' leaders from 25 SHGs.

Result 2: SHG's members that applied a sustainable agricultural approach improved their level of organization and increased their food production. The project brought positive changes to livelihoods of beneficiaries like increasing the number of small-scale farmers who adopted sustainable agriculture practices, and increase the farmers' yields through improved agriculture practices. There are three indicators for this result: (1) Targeted households practiced at least 3 sustainable agricultural practices; (2) Number of beneficiaries who manage to increase their yield of rice, vegetables and chicken; and (3) Number of SHGs that decided to become Farmer Associations. The internal monitoring revealed that the project has exceeded the target of 255 farmers. The Impact Assessment conducted by partner revealed that 86.67% of the farmers practiced sustainable rice production, 82% incorporated chicken raising into their integrated farming system, and 91.3% practiced fruit and vegetable intercropping system. The household survey indicates that 18% of the respondents practiced 3 or more technologies, 30.8% practiced 2 technologies and 43.6% practiced only 1 technology. The adoption of the number of technologies depends on the farmers' perception on what is applicable to their farms and depending on the crop. The use of organic fertilizers is the most common sustainable agriculture practice adopted by the respondents particularly, using Bokashi fertilizer. The farmers use combination of traditional and sustainable agriculture in their farmers (i.e. traditional combined with the sustainable agriculture).

The target of the project is for 60% of the beneficiaries increase their rice production by more than 20%; 75% of beneficiaries have increased vegetable by more than 30%; and 70% of beneficiaries have increased their chicken production by more than 30%. The comparison between current data and the data from the baseline survey showed that 60%, 56% and 47.67% of SA farmers managed to increase their yields of rice (floating rice, dry season rice, and wet season rice). The endline survey indicates that the production of rice has increased by 11% from the production before the project and 20% increase for rice seeds. There were 47.2% of the rice farmers whose production have exceeded 20%. This fell short of the target of 60% of rice farmers whose production have increased by more than 20%. As indicated in the comparison between the two production period, the endline production is much higher compared to the baseline

indicating that the benefits from the use of the sustainable agriculture technology is now starting to manifest.

For vegetables, the production has significantly increased from 12.89 t/ha in the baseline to 21.42 t/ha in the endline or a 66.18% increase in production which exceeded the target. There were 57.9% of the farmers whose production have increased by more than 30%. This number is lower compared to the target if 75% farmers whose production have increased by 30%.

Approximately, 82.61% of respondents raised chicken. The production of chicken has significantly increased, from 49.43 kilos per HH to 97.76 kilos per HH or an increase of 97.8%. There were 87.5% of the farmers whose production have increased by more than 30%. This has exceeded the 70% target of farmers whose production is higher by 30%.

There are 5 SHGs that formed to ACs (instead of Farmer Associations) out from the target of 8 SHGs to be covered to Farmer Associations. The farmers are more interested to form ACs instead of farmer associations. This achievement fell short of the target of 8 SHGs being converted to agricultural cooperatives.

The project also provided assistance to established 24 SHGs. They were provided trainings and supported on the management, marketing and assessing their beneficiaries.

Result 3: The revenue of the targeted vulnerable beneficiaries is improved. Result 3 has the following indicators: (1) Number of beneficiaries who manage correctly their IGA and reached over \$50 profit per month; (2) Number of SHGs actively working; and (3) Number of beneficiary households referred by health partners of LC and the RH or HC to get benefit from MODE FES project. The assessment revealed that there 54% of the FES beneficiaries whose profit from IGAs have reached over \$50. The beneficiaries received support from Mlup Baitong and a small number by MODE. Roughly 59.46% of IGA beneficiaries were trained by the project. The target to have 24 SHGs actively working has been achieved. A total of 65 beneficiaries that are referred by health partners of LC. The project has achieved the target of having the number of beneficiary households that are referred by health partners of LC and the RH or HC.

Result 4: Improve environmental protection and climate changes awareness and resilience. This result has the following indicators: (1) 47 SHG members who have developed a climate change mitigation plan; (2) project stakeholders have put in place measures to mitigate environmental impacts; (3) 35 families who have a disposal pit system and properly discard wastes at community level. The project has exceeded its target of having 47 SHG members that develop climate change mitigation plan (i.e. a total of 65 SHGs have developed their climate mitigation plans). Close to one third (33%) revealed that they have climate change mitigation plan in place and also adopt measures to mitigate the impacts to the environment. Most of the shareholders have identified and implemented measures to mitigate the environmental and climate change impacts. About 31% of the FES beneficiaries reported they have adaptation measures to mitigate the impacts of the environment. The most common adaptation measures adopted by the farmers include the use of drought resistance crops (20.5%), installation of rain water catching jars in the houses (17.9%), and storing crop seeds for planting (17.9%). The project achieved its target to have 35 families who have a disposal pit system and properly discard wastes at community level. The key informants estimated that around 80% to 90% families have a disposal pit system and properly discard wastes at community level. Around 74% have reported that they put up waste disposal system in their households. Only 26% have reported that they have communal waste disposal system.

Other Results. The project also accomplished the following:

- SHGs/Emerging FO leaders received knowledge on Disaster Risk Reduction/Climate Change (DRR/CC) and were able to disseminate to their communities.
- A total of 71 SHG leaders were able to disseminate DRR/CC knowledge to their communities.
- Number of beneficiaries affected by flood or drought who received additional support.
- A total of 61 beneficiaries who were affected by flood and droughts have revived support from the project in the form of small grant, seeds, and agriculture tools.

Result 5: Evidence-based information, studies and operational research on farmer's issues are conducted and results are disseminated among farmers and key stakeholders in the sector. This result has the following indicators: (1) Number of capitalization topics carried out; (2) Number of thematic working groups organized; and (3) Number of National Seminar organized (in collaboration with Eclasio). Two out of the three indicators have been achieved. The project has exceeded the target of producing 6 capitalization topics. The project produced 18 capitalization topics. The production of materials was done in collaboration with other experts, researchers and students from other institutions. Some of the materials were produced by some students as part of their research work and presented in various forums. The project organized 8 thematic working groups, which is slightly below the target (i.e. 10 working groups). The project has exceeded its target (2 seminars) by holding 3 seminars.

Efficiency. The project was implemented efficiently, particularly in the utilization of the resources. The project tapped different partners to provide their expertise. The program is considered to be economically efficient based on its relatively low investment compared to the expected results like economic advances, livelihood improvement (including aspects such as food security and health), disaster preparedness and social inclusiveness, in relation to the size of the beneficiary population. The presence of partner organizations working on health-related projects in the same area can enhance the effects resulting from the improved economic situation of the people, further reducing expenditures due to health problems. Low investment inputs can have a strong positive impact on the beneficiaries on the promotion and use of natural pesticides and fertilizers, poultry raising, seed selection, sources of water supply sources such as wells, ponds or small-scale irrigation schemes, and basic agricultural materials and tools.

The project is deemed efficient in terms of completing the planned activities. All the planned activities were completed and the completion rate is more than 91%.

Sustainability. The project is sustainable in the following aspects: Technical; Financial; and Social Sustainability. The project also has in place exit strategy that will ensure the project will continue after its completion.

Change in the Behavior towards Sustainable Agriculture and Impacts to Production. The awareness of the farmers on sustainable agriculture is high. The farmers pursue the adoption of the SA technology cautiously. Among the factor that motivates the farmers to adopt the sustainable agriculture include the following:

- Access to Loans
- Access to Knowledge and Skills and Technologies
- Favorable Pricing of Products and Inputs through Collective Marketing and Bulk Procurement

Factors Influencing the Transition to Sustainable Agriculture Practices. The adoption of the SA was influenced by the knowledge of the technologies, the outcome, and the market opportunities of the

organic products. Seeing the successful farmers using the technologies easily convince the farmers to adopt the technologies. Greater interest can also be achieved from the monetary reward.

Challenges of Establishing SHGs, FOs and ACs and Efficiency of Operations

- Limited understanding on the purpose of the ACs
- Limited financial capital of ACs and SHGs
- Limited capacity of the AC committee
- Dependence on assistance from NGOs to sustain the operation of the SHGs, FOs and ACs
- Limited competitiveness, limited access of market and business opportunities
- Delinquent payment of loans and dues of some members/borrowers

Contribution to Results

- **Contribution of the Project to Joint Strategic Framework (JSF) (Joint strategic goal 6 – Improve Environmental protection and Climate change resilience).** The project has contributed to the achievement of JSF-G6 through the development of climate change mitigation and measures that mitigate the impacts of the environment.
- **Contribution to Gender Mainstreaming.** Through the project, there was an increased participation of women in community involvement through the SHGs and the ACs. The women also participated in various capacity building activities of the project, particularly training on finance and management. By lifting out from poverty, the women beneficiaries of FES enable the women beneficiaries to strengthen their financial positions and will be less dependent on their husbands.

Lessons Learned. The assistance of NGOs remains crucial in the establishment of Self-Help Groups (SHGs) and formalization to Agriculture Cooperatives (ACs). To be viable, the ACs needs to be linked to do business with private companies. Poor farmers easily adopt the technologies by imitating successful farmers. Lastly, poor farmers can be competitive in their farming through collective trading.

Recommendations. The following recommendations were drawn from the experience of the FES project:

- Develop the skills of local youths through volunteer and internship programs at the ACs
- Develop a potential product (i.e. “champion product”) and link to the government’s programs such as the One –Village-One Product (OVOP) movement and to the regional value chain
- Institutionalize the use of FAO’s TAPE Tool
- Introduce biodigester to the members of AC
- Conduct a survey and mapping of pesticide contamination of the soil and use of software to model the extent of groundwater using GIS modeling software (e.g. MODFLOW).

Monitor the impacts of the intervention in terms of reducing greenhouse gases (GHGs).

CHAPTER 1. INTRODUCTION

1.1 BACKGROUND

Uni4Coop was created by a collaboration of four Belgian University NGOs to strengthen synergies and mutual engagement in a common program funded by the Belgian Development Cooperation. The program envisioned that small scale farmers improve their economic security and contribute to better food sovereignty. Following agro ecological principles, the farmers would have improved their agriculture productivity and improved their income through informal and formal, individual, and collective income-generating activities. For this purpose, the farmer organizations would have delivered quality and inclusive services to support farmers' technical knowledge and business skills. The Uni4Coop program is implemented by Louvain Cooperation (LC) who is implementing the Food and Economic Security (FES) Project, and Eclasio, who is implementing the UpScale Project. Uni4Coop was designed to maximize synergy between the two projects (UpScale and FES), its key actors and the goals. The program has 2 Specific Objectives: (1) SO1 implemented by Eclasio; and (2) SO2 implemented by LC. The Uni4Coop program is inscribed in the frame of a Joint Strategic Framework for Cambodia (JSF). The JSF is formulated jointly by all the Belgian NGOs that are implementing project activities in Cambodia as well as outlining the NGOs common strategies.

1.2 EVALUATION METHODOLOGY

1.2.1 OBJECTIVES AND SCOPE OF THE EVALUATION

The evaluation was conducted to assess the achievements of Uni4Coop and its contribution to JSF Cambodia, mainstreaming of gender and environmental aspects, identify Critical Areas for Improvement in relation to the design, implementation and reflect on partnership relations with the privileged users of the program. This evaluation aims:

- To evaluate the project using the DAC criteria to be evaluated, specifically regarding Effectiveness and Sustainability on the level of the SO;
- To assess the contribution to JSF, mainstreaming of gender and environmental aspects;
- To analyze the impact of the planned partnership relationships and participatory implementation of this program;
- To identify Critical Areas for Improvement in relation to the design, implementation, or the M&E of the program.
- To reflect on partnership relations with the privileged users of the program

The evaluation will also answer some key questions under the following DAC Criteria:

| Upscale Project | FES Project |
|---|---|
| Efficiency: <ul style="list-style-type: none">▪ <i>"What if we had to do it again"? Would we use the same allocation strategy?</i>▪ <i>To what extent are inputs managed in a cost-efficient way and within the set timeframe given the changes in the Cambodian Agriculture and</i> | Efficiency: <ul style="list-style-type: none">▪ <i>"What if we had to do it again"? Would we use the same allocation strategy?</i>▪ <i>To what extent are inputs managed in a cost-efficient way and within the set timeframe given the changes in the Cambodian Agriculture and</i> |

| Upscale Project | FES Project |
|---|---|
| <p><i>Economic sector and the effects of the Covid-19 situation?</i></p> <ul style="list-style-type: none"> <i>To what extent are the intended processes and all types of activities implemented within the planned timeframe?</i> | <p><i>Economic sector and the effects of the Covid-19 situation?</i></p> <ul style="list-style-type: none"> <i>To what extent are the intended processes and all types of activities implemented within the planned timeframe?</i> |
| <p>Effectiveness:</p> <ul style="list-style-type: none"> <i>To what extent have both SOs been achieved as planned by the end of the program?</i> <i>Has the transition to a more sustainable agriculture brought economic growth to small-scale farmers? How is the increment of income being invested?</i> <i>What have been the COVID-19 implications/effects in the income generated from farming by small scale farmers? What coping mechanisms have been implemented by small-scale farmers, the community, AC's and Farmers Associations? What has been set by farmers, AC, and UAC to solve specific social problems to the benefit of the poor or disadvantages?</i> | <p>Effectiveness:</p> <ul style="list-style-type: none"> <i>To what extent have both SOs been achieved as planned by the end of the program?</i> <i>Has the transition to a more sustainable agriculture brought economic growth to small-scale farmers? How is the increment of income being invested?</i> <i>What have been the COVID-19 implications/effects in the income generated from farming by small scale farmers? What coping mechanisms have been implemented by small-scale farmers, the community, AC's and Farmers Associations? What has been set by farmers, AC, and UAC to solve specific social problems to the benefit of the poor or disadvantages?</i> |
| <p>Impact:</p> <ul style="list-style-type: none"> <i>Are the business models (initiated by the participating populations of the programme) of IGA (income generating activities), family farming, AC, and UAC financially viable? Revenues exceed costs? What was done with the surplus (does the surplus cover profits for the formation of capital to expand business and stay competitive)? What has been done to increase the volume of products sold or to increase the sale price obtained?</i> <i>Evaluated with a gender perspective, what were the benefits gained and constraints faced by farmers in the different forms of collaboration that were promoted by UpScale and FES projects? How cooperation among farmers generated an economy of scale? Did the UpScale and FES project activities supporting producers' cooperation (market orientation, technical and business performance, organizational development) made them viable and sustainable?</i> <i>What is the level of use of the outputs produced by the projects? How the target groups took action to improve their services and value-chains?</i> <i>Utilization of results: Are the promotion of services and products (value-chains) being used by the direct target groups?</i> | <p>Impact:</p> <ul style="list-style-type: none"> <i>Are the business models (initiated by the participating populations of the programme) of IGA (income generating activities), family farming, AC, and UAC financially viable? Revenues exceed costs? What was done with the surplus (does the surplus cover profits for the formation of capital to expand business and stay competitive)? What has been done to increase the volume of products sold or to increase the sale price obtained?</i> <i>Evaluated with a gender perspective, what were the benefits gained and constraints faced by farmers in the different forms of collaboration that were promoted by UpScale and FES projects? How cooperation among farmers generated an economy of scale? Did the UpScale and FES project activities supporting producers' cooperation (market orientation, technical and business performance, organizational development) made them viable and sustainable?</i> <i>What is the level of use of the outputs produced by the projects? How the target groups took action to improve their services and value-chains?</i> <i>Utilization of results: Are the promotion of services and products (value-chains) being used by the direct target groups?</i> |
| <p>Sustainability:</p> <ul style="list-style-type: none"> <i>Has there been a change in the behavior (mindset)</i> | <p>Sustainability:</p> <ul style="list-style-type: none"> <i>Has there been a change in the behavior (mindset)</i> |

| Upscale Project | FES Project |
|--|--|
| <p><i>of small-scale farmers towards the use of organic (not chemical) inputs before/during the program intervention? In link with intensified productivity (yields, labor, knowledge) of AE production (social sustainability)</i></p> <ul style="list-style-type: none"> ▪ <i>What were the crucial factors that significantly contributed to the AE transition (e.g. the changes of practices, the farmers' conviction regarding an AE approach, etc.) that enable small-scale farmers to take the risk to change/adapt their production systems, and which factors mostly inhibit their transition? What is the level of efficiency and small-scale farmers' ownership of the small irrigation system developed by ISC (Disaggregated by types of farming: family consumption, commercial, and semi-commercial)? How can the model be scaled up? (technical sustainability)</i> | <p><i>of small-scale farmers towards the use of organic (not chemical) inputs before/during the program intervention? In link with intensified productivity (yields, labor, knowledge) of AE production (social sustainability)</i></p> <ul style="list-style-type: none"> ▪ <i>What were the crucial factors that significantly contributed to the AE transition (e.g. the changes of practices, the farmers' conviction regarding an AE approach, etc.) that enable small-scale farmers to take the risk to change/adapt their production systems, and which factors mostly inhibit their transition?</i> ▪ <i>What are the challenges in establishing SHGs and FOs, ACs; what is the efficiency of these organizations and what are the motivations and benefits that small-scale farmer have to join them? (institutional sustainability)</i> ▪ <i>What are the levels of utilization, ownership and autonomy of SHGs? What about the analysis of the main operating ratios (savings, credit, reimbursement, capitalization, etc.)?</i> |
| <p>Relevance:</p> <ul style="list-style-type: none"> ▪ <i>After the training received from FAEC, are Service Providers strong enough now? What about the local Service Providers (master farmers)? Are they able to provide their services (Decision-making & management for ACs, SHGs; market access; and AE technical practices for producing chicken feed, vegetables and rice seeds) to their members (including women/youth) independently? Or are they still relying on FAEC?</i> ▪ <i>Integration of women and youth in decision making spaces of AC and UAC is to improve their business performance; is this hypothesis verified? What has been done to improve participation of women and youth in AC and UAC businesses?</i> ▪ <i>How the interventions (UpScale and FES) have helped overcome small scale farmers' challenges linked with micro-finance and banking organizations to access credits? What is the capacity of farmers to manage their capital and repay their debt? Has it changed during the program? What other resources for financial access have been developed?</i> ▪ <i>Which factors influence trust-building in the provision of technical assistance in AE and capacity building in business development for small-scale farmers?</i> | <p>Relevance:</p> <ul style="list-style-type: none"> ▪ <i>How the interventions (UpScale and FES) have helped overcome small scale farmers' challenges linked with micro-finance and banking organizations to access credits? What is the capacity of farmers to manage their capital and repay their debt? Has it changed during the program? What other resources for financial access have been developed?</i> ▪ <i>Which factors influence trust-building in the provision of technical assistance in AE and capacity building in business development for small-scale farmers?</i> |
| <p>Contribution to Results:</p> | <p>Contribution to Results:</p> |

| Upscale Project | FES Project |
|--|--|
| <ul style="list-style-type: none"> ▪ <i>In what level has the program contributed to achieve the following results?</i> ▪ <i>What tools/strategies for sharing knowledge among farmers are the most effective for the Cambodian context?</i> | <ul style="list-style-type: none"> ▪ <i>In what level has the program contributed to achieve the following results?</i> ▪ <i>What tools/strategies for sharing knowledge among farmers are the most effective for the Cambodian context?</i> |
| Cross Cutting Issues: <ul style="list-style-type: none"> ▪ <i>Which factors were crucial for the achievements?</i> ▪ <i>Which factors were inhibiting to reach the expected results?</i> | Cross Cutting Issues: <ul style="list-style-type: none"> ▪ <i>Which factors were crucial for the achievements?</i> ▪ <i>Which factors were inhibiting to reach the expected results?</i> |

1.2.2 SECONDARY DATA COLLECTION OF SECONDARY DATA

Preliminary data were collected to come up with a situation that provides a context of the project. These were drawn mainly from the review of the secondary data. Relevant documents (progress reports, project documents, JSF-Cambodia 2017-2021, etc.) were reviewed to provide a clearer context of the project.

1.2.3 PRIMARY DATA COLLECTION

Quantitative and qualitative data were collected from the beneficiaries and from the stakeholders of the project to provide specific information and supplement the information taken from the secondary data. The respondents are shown in (Annex 1).

Individual Interviews. The evaluation used a combination of tools and approaches. CRCC used both quantitative and qualitative tools. Farmer beneficiaries were selected from the list of AC members. Semi structured interviews were also done with the partners involved in the program to provide deeper insights from the different sectors who are familiar of the situation where the project operates that complements the information collected from the beneficiaries (Figure 1).

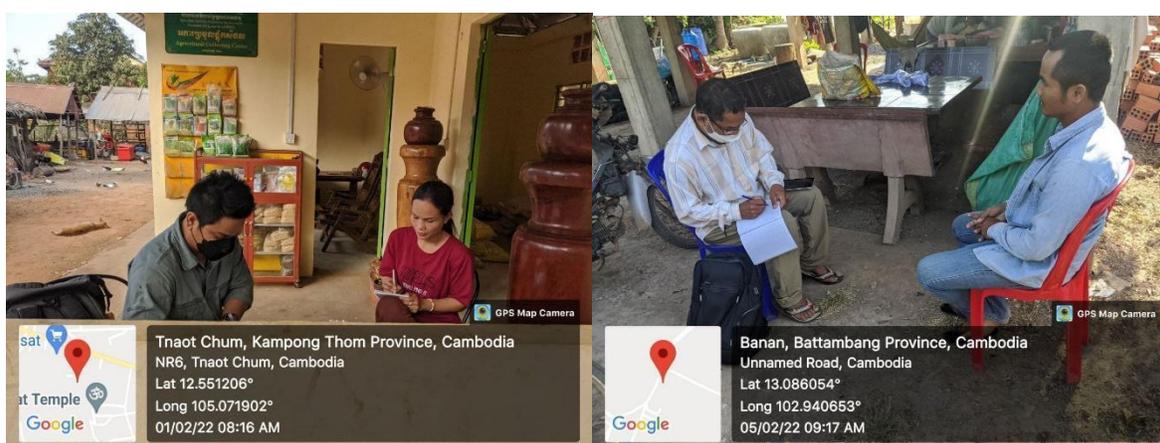


Figure 1. The enumerators conducting interviews with the beneficiaries of the Project

Focus Group Discussion. The Focus Group discussion provides collective information from particular group of beneficiaries. The FGD sought clarification from the participant's different ideas that represents the following sectors: Farmer Groups; Women Groups; Youths; and Persons with Disabilities (Figure 2).



Figure 2. Focus Group Discussion conducted with the beneficiaries of the project

Field Observation and Documentation. Field visits were done to observe the actual situation and validate the information provided by the individual respondents. Aside from the field notes, the field observation was supplemented with photographs that captured the representative condition in the field.

1.2.4 DATA HANDLING AND PROCESSING

The data collected from household survey were stored in a database software (MS Access) and MS Excel. Tables and charts will be produced from the collated data to support the discussions.

1.3 ORGANIZATION OF THE REPORT

This report presents the achievements of the two projects, UpScale (implemented by Eclasio) and Food and Economic Security (implemented by Louvain Cooperation). Chapter 2 presents the assessment of UpScale project and Chapter 3 presents the result of assessment of FES project. Chapter 2 and 3 presents separately the situational analysis of each project UpScale and FES, the synergies, project design, relevance, effectiveness, sustainability, contribution to the results, lessons learned, SWOT analysis and the recommendation based on the SWOT analysis.

CHAPTER 2. THE UPSCALE PROJECT

The Cambodia's UpScale project provides development support services to AC through national federations of FOs (FAEC and FCFD). The UpScale Project was implemented by the 6 Cooperatives in Tramkok District, Takeo Province from 2017 to 2021 on Small-scale Agroecology based Project, including rice seed production, Organic Fertilizer Production, Chicken Farm-Range and Vegetable Productions and soil improvement. Since 2017, Eclasio implemented the UpScale project that focused on strengthening operational and support services to 66 AC members of the FO-Fed FAEC and FCFD in 11 provinces. Among these, 6 ACs in Battambang province were organized under BUAC in 2017. The operational and support services provided at Battambang include access to credit, access to quality rice-seeds, performance evaluation of AC (using SCM), the participation to the inter-profession on rice (CRF – Cambodian Rice Federation), the capacity building to AC (simple accounting, internal control, business planning), and the access to market. From 2017 to 2021, the UpScale project supported the implementation of a number of pilot initiatives and mechanisms, notably the establishment of a system of service-supply by one Federation of FO, the FAEC. The services provided by FAEC intended to be supplied to their AC members. In 2019 FAEC was federating 45 ACs from 11 provinces. FAEC's services include supply of Rice-Seeds and Fertilizers, Paddy-Rice collective sale, Credit facilitation, AC's Organizational Development, and Advocacy. Several members of AC have been trained to provide quality services, notably facilitation skills, training skills, and technical and managerial performances support.

2.1 SITUATIONAL ANALYSIS

Table 1 shows the demographic profile of respondents disaggregated by province. Most of the respondents are male-headed households (81%). Almost the same proportion was observed in the provinces surveyed. The respondents are relatively young, within the bracket of 41-50 years old (26.2%) and 30-40 years old (24.6%) and the beneficiaries mostly attained primary education (48.2%). Most of the respondents are non-poor (91%, leaving only 9% who are ID Poor 1 and 2. The household (HH) size are relatively small (4-5 members) only.

Table 1. Socio-demographic profile of UpScale beneficiaries

| Age Range | Battambang | Kampong Thom | Prey Veng | Takeo | Total |
|---------------------------------|------------|--------------|-----------|-------|-------|
| SEX of HH Head | | | | | |
| ▪ Female | 22.0% | 15.0% | 20.0% | 19.0% | 19.0% |
| ▪ Male | 78.0% | 85.0% | 80.0% | 81.0% | 81.0% |
| AGE | | | | | |
| ▪ <30 yo | 12.2% | 5.0% | 14.3% | 8.9% | 9.7% |
| ▪ 30-40 yo | 14.6% | 30.0% | 25.7% | 26.6% | 24.6% |
| ▪ 41-50 yo | 24.4% | 37.5% | 22.9% | 22.8% | 26.2% |
| ▪ 51-60 yo | 29.3% | 15.0% | 14.3% | 26.6% | 22.6% |
| ▪ >60 yo | 19.5% | 12.5% | 22.9% | 15.2% | 16.9% |
| EDUCATION | | | | | |
| ▪ Primary | 43.9% | 72.5% | 42.9% | 40.5% | 48.2% |
| ▪ Secondary | 36.6% | 20.0% | 31.4% | 43.0% | 34.9% |
| ▪ High School | 17.1% | 5.0% | 22.9% | 12.7% | 13.8% |
| ▪ College / university graduate | 2.4% | 2.5% | 2.9% | 3.8% | 3.1% |
| ID POOR | | | | | |
| ▪ Non-Poor | 87.8% | 85.0% | 94.3% | 96.2% | 91.8% |

| Age Range | Battambang | Kampong Thom | Prey Veng | Takeo | Total |
|----------------------------|------------|--------------|-----------|-----------|------------|
| ▪ ID Poor 2 | 7.3% | 12.5% | 5.7% | 2.5% | 6.2% |
| ▪ ID Poor 1 | 4.9% | 2.5% | 0.0% | 1.3% | 2.1% |
| OCCUPATION | | | | | |
| ▪ Self-employed | 58.5% | 72.5% | 65.7% | 59.5% | 63.1% |
| ▪ Unpaid family worker | 17.1% | 10.0% | 22.9% | 20.3% | 17.9% |
| ▪ Paid employee | 12.2% | 12.5% | 11.4% | 17.7% | 14.4% |
| ▪ Housewife | 9.8% | 0.0% | 0.0% | 0.0% | 2.1% |
| ▪ Unemployed | 0.0% | 2.5% | 0.0% | 2.5% | 1.5% |
| ▪ Retired/ too old to work | 2.4% | 2.5% | 0.0% | 0.0% | 1.0% |
| HH SIZE RANGE | | | | | |
| ▪ <4 | 36.6% | 42.5% | 42.9% | 41.8% | 41.0% |
| ▪ 4-5 | 48.8% | 50.0% | 37.1% | 45.6% | 45.6% |
| ▪ >5 | 14.6% | 7.5% | 20.0% | 12.7% | 13.3% |
| N | 41 | 40 | 35 | 79 | 195 |

Source: HH Survey

COVID 19 has different effects to UpScale beneficiaries. We assessed the impacts of COVID 19. The impacts of COVID 19 focused on: Education of Children; Family Relations; Food and Hunger; Health; HH Savings; Livelihoods; Monthly HH Expenses; Monthly HH Income; Psychological; and Social and Religious. While the participants in the FGD reported a reduction in income and production, the respondents in the household survey indicate that the pandemic has little effect on their production and income (Table 2).

One impact of COVID 19 is its effect on the education of children. About 59% of the respondents believe the learning of their children was left behind considering that the children cannot meet too often with their teachers. Almost one third of the respondents, however, reported that the education of their children were not affected by COVID 19 pandemic including health, savings, livelihoods, and monthly expenses of the households. The HH interview indicates, less than 2% of the respondents reported that COVID 19 caused food and hunger in the family.

The COVID 19 pandemic has little effect on the livelihoods, household expenses, savings and health of the households. More respondents reported it affected them psychologically (i.e. they became bored and worried) (69.2%) and could not attend social functions (76.4%). Since most of the borders in Vietnam and Thailand were closed, the transport of products has stopped. The farmers focused marketing their products in the local market (Source: Interview with Key Informants).

COVID 19 however has a significant impact on monthly income of the respondents. About 45% of UpScale beneficiaries reported the household income has declined due to COVID 19 pandemic, which also significantly affected the psychology and social/religious lives of the beneficiaries.

Table 2. Impact of COVID 19

| Effect of COVID 19 | Battambang | Kampong Thom | Prey Veng | Takeo | Total |
|--|------------|--------------|-----------|-------|-------|
| Education of Children | | | | | |
| ▪ Learning of my children were left behind | 41.5% | 55.0% | 65.7% | 67.1% | 59.0% |
| ▪ Learning of children has declined | 31.7% | 32.5% | 57.1% | 59.5% | 47.7% |
| ▪ Not affected/impacted | 58.5% | 45.0% | 31.4% | 21.5% | 35.9% |
| Family Relations | | | | | |
| ▪ Burdened by HH tasks | 4.9% | 17.5% | 8.6% | 15.2% | 12.3% |
| ▪ More friction/arguments in the family | 0.0% | 2.5% | 0.0% | 1.3% | 1.0% |
| ▪ Not affected/impacted | 95.1% | 82.5% | 91.4% | 84.8% | 87.7% |
| Food and Hunger | | | | | |
| ▪ Not affected/impacted | 97.6% | 100.0% | 97.1% | 96.2% | 97.4% |
| ▪ Food becomes scarce | 2.4% | 0.0% | 0.0% | 2.5% | 1.5% |
| ▪ Often skipped meals | 0.0% | 0.0% | 2.9% | 1.3% | 1.0% |
| Health | | | | | |
| ▪ Not affected/impacted | 100.0% | 95.0% | 97.1% | 96.2% | 96.9% |
| ▪ Family members becomes sickly | 0.0% | 5.0% | 2.9% | 3.8% | 3.1% |
| HH Savings | | | | | |
| ▪ HH savings declined | 2.4% | 17.5% | 11.4% | 25.3% | 16.4% |
| ▪ No changes | 97.6% | 82.5% | 88.6% | 74.7% | 83.6% |
| Livelihoods | | | | | |
| ▪ Not affected/impacted | 65.9% | 62.5% | 77.1% | 69.6% | 68.7% |
| ▪ Lost my job | 4.9% | 27.5% | 17.1% | 11.4% | 14.4% |
| ▪ Cannot sell my products | 12.2% | 2.5% | 5.7% | 17.7% | 11.3% |
| ▪ Unable to find work | 17.1% | 5.0% | 2.9% | 8.9% | 8.7% |
| ▪ Unable to transact business | 2.4% | 2.5% | 2.9% | 3.8% | 3.1% |
| ▪ Decline of the price of agriculture products | 0.0% | 5.0% | 0.0% | 2.5% | 2.1% |
| ▪ Unable to attend to my farm | 0.0% | 0.0% | 0.0% | 1.3% | 0.5% |
| Monthly HH Expenses | | | | | |
| ▪ No changes | 80.5% | 82.5% | 65.7% | 78.5% | 77.4% |
| ▪ Expenses increased | 14.6% | 15.0% | 20.0% | 3.8% | 11.3% |
| ▪ Expenses decreased | 4.9% | 2.5% | 14.3% | 16.5% | 10.8% |
| Monthly HH Income | | | | | |
| ▪ No changes | 61.0% | 45.0% | 60.0% | 54.4% | 54.9% |
| ▪ HH income declined | 39.0% | 55.0% | 40.0% | 45.6% | 45.1% |
| Psychological | | | | | |
| ▪ Became bored and worried | 78.0% | 60.0% | 74.3% | 67.1% | 69.2% |
| ▪ Not affected/impacted | 22.0% | 40.0% | 25.7% | 32.9% | 30.8% |
| ▪ Becomes depressed and helpless | 29.3% | 22.5% | 22.9% | 27.8% | 26.2% |
| ▪ Becomes lonely | 0.0% | 12.5% | 2.9% | 13.9% | 8.7% |
| Social and Religious | | | | | |

| Effect of COVID 19 | Battambang | Kampong Thom | Prey Veng | Takeo | Total |
|--|------------|--------------|-----------|-----------|------------|
| ▪ Difficulty to attend social function (wedding and funeral) | 73.2% | 77.5% | 74.3% | 78.5% | 76.4% |
| ▪ Unable to meet friends | 73.2% | 62.5% | 74.3% | 63.3% | 67.2% |
| ▪ Unable to pray to the Pagoda | 51.2% | 57.5% | 54.3% | 62.0% | 57.4% |
| ▪ Not affected/impacted | 26.8% | 22.5% | 20.0% | 21.5% | 22.6% |
| N | 41 | 40 | 35 | 79 | 195 |

The COVID 19 pandemic impacted close to 13% of the UpScale beneficiaries in terms of crop production and more than 21% reported their farm income was affected. About 12.8% reported their crop production decreased and 21.5% have decreased their income (Table 3). The COVID 19 pandemic caused significant economic disruption, particularly, on trading of farmers' products (please see Box 1). The decline of market demand forced the farmers to cut down the production, particularly for vegetables. Some farmers minimized farming activities due to high agricultural inputs and very limited market of agriculture products.

Box 1. Impacts of COVID 19 pandemic to the trading of agricultural goods

BUAC has a contract with AMRU Rice to sell white rice. Due to COVID-19 pandemic, the company canceled the contract. Most rice millers stopped buying rice because of no buyers. One of the rice companies (AGRIBEE) did not pay to BUAC for last year's rice price and because of this BUAC also cannot pay to AC to pay the members. While there was a decline in the trading of rice, the agricultural inputs became more expensive. In 1,000 kilograms of white rice, BUAC is expected to earn around 10,000 riels from the buyer (company). But BUAC and AC incurred losses when the company failed to pay. Likewise, TrUAC also incurred losses for their products. The cooperative aired the same problem of rising prices of agriculture inputs and no market of agricultural products. As a consequence, most farmers stopped the agriculture activities and sold the chicken to buy necessary materials

(Source: Interview with TrUAC and BUAC)

Table 3. Impacts of COVID-19 to crop production and farm income of UpScale beneficiaries

| Impact | Battambang | Kampong Thom | Prey Veng | Takeo | Total |
|------------------------|------------|--------------|-----------|-------|-------|
| Crop Production | | | | | |
| Crop Decreased | 9.8% | 15.0% | 2.9% | 17.7% | 12.8% |
| Crop Increased | 2.4% | 2.5% | 0.0% | 0.0% | 1.0% |
| No Difference | 87.8% | 82.5% | 97.1% | 82.3% | 86.2% |
| Farm Income | | | | | |

| Impact | Battambang | Kampong Thom | Prey Veng | Takeo | Total |
|---------------------|------------|--------------|-----------|-----------|------------|
| Lost Income (1 Yr.) | 41.5% | 7.5% | 2.9% | 26.6% | 21.5% |
| No Changes | 58.5% | 92.5% | 97.1% | 73.4% | 78.5% |
| N | 41 | 79 | 35 | 79 | 234 |

Source: HH Survey

There are 44% reported their livelihoods are not affected by the pandemic. Those who are affected by the pandemic have to exert efforts to plant more or increase livestock and fish production (29.2%). Some save foods (17.4%) or conduct house to house selling the products (15.9%) (Table 4). Some sought non-farm and off-farm employment (e.g. working with business establishments and ELCs) to supplement their income. There are farmers however who shifted to other products and intensified the production. Some of the trading made by agricultural cooperatives was suspended after the trading partners of ACs stopped buying the agricultural products (See Box 1). The authorities did not allow people to go to another village to meet or have direct communication and the farmers are unable to participate in training/meeting/capacity building.

Table 4. Coping mechanism of the UpScale beneficiaries against COVID-19 pandemic

| Coping with COVID | Battambang | Kampong Thom | Prey Veng | Takeo | TOTAL |
|--|------------|--------------|-----------|-----------|------------|
| Increase the plantings or livestock or fish production | 26.8% | 30.0% | 22.9% | 32.9% | 29.2% |
| Save the foods | 7.3% | 27.5% | 20.0% | 16.5% | 17.4% |
| Sell the products house to house | 17.1% | 7.5% | 11.4% | 21.5% | 15.9% |
| Find for more work | 7.3% | 10.0% | 2.9% | 10.1% | 8.2% |
| Expand business | 2.4% | - | - | - | 0.5% |
| Sell other equipment | 2.4% | - | - | - | 0.5% |
| Sold farmland | - | 2.5% | - | - | 0.5% |
| Trade the products online | 2.4% | - | - | - | 0.5% |
| None | 26.8% | 10.0% | 11.4% | 12.7% | 14.9% |
| Not impacted at all | 34.1% | 47.5% | 60.0% | 39.2% | 43.6% |
| N | 41 | 40 | 35 | 79 | 195 |

Source: HH Survey

The small-scale farmer beneficiaries reported that due to COVID-19, some project activities were delayed, as it was difficult to conduct a meeting, and many farmers were unable to participate in training and capacity building. The COVID-19 pandemic has been addressed by the project through adaptive measures and tools such as localized meetings and group activities, developing digital communication connecting farmer' leaders to project staff members and buyers, and promoting direct marketing to bypass market dysfunctions. FAEC struggled to continue coordinating and implementing activities following the Cambodian government guideline on social distancing and sanitation (Source: FAEC Report for ending UpScale program). In the case of Mlup Baitong, its staff were not allowed to travel to provinces in public

transportation to avoid getting infected. Instead, the documents from the provinces or from Phnom Penh were sent through taxis and the salaries were sent through money transfers. The meetings were also conducted online (Source: Interview with Key Informants).

2.2 SYNERGIES AND COMPLEMENTARITIES

The UpScale project has the following synergies: (1) Common capitalization process; (2) Common Farmers' Organization Federation advocacy strategy. In fostering greater synergy between LC and Eclasio, the following objectives were pursued by the project: exchanges of knowledge management; operational objectives; and mutualisation of resources. The Uni4Coop program is implemented in partnership with a number of local federations, NGOs and institutions: (1) Facilitation Association of Economy for Cooperatives (FAEC); Cambodian Institute for Research and Rural Development (CIRD); Irrigation Service Center (ISC); Mlup Baitong (MB) and the Royal University of Agriculture, ECOLAND Research Center (RUA-ECOLAND). Eclasio is having a structural partnership with FAEC for institutional strengthening. FAEC collaborated with FCFD, a similar Federation of FOs, to reach more farmer cooperatives and improve effectiveness. Among the cooperatives supported were 2 Unions of Agricultural Cooperatives, BUAC and TrUAC. Eclasio is also partnering with various technical partners specialized in relevant fields (CIRD and ISC). The project also collaborates with DACP, ITC, the Liège University, and St Paul Institute in providing extra technical support. Eclasio established synergies with WWF, LC, AFDI, and other projects funded by the IFC and the AFD. FAEC and CIRD coordinated on the training of rice seeds and CIRD are working with FAEC's service provider trainers in training the farmers. FAEC worked with CIRD on the access to market, linkage of the rice seed to the market, and to private companies like AMRU Rice, AgroTech, Angkor Rice Mill for selling of rice seeds. FAEC focused on the marketing while CIRD on the technical aspect. RUA-Ecoland provided technical assistance to FAEC through R&D (i.e. research methodology, collecting data, and data entry) (Source: KII LC). The partnership with NGOs has tapped the expertise and skills of the partners in the delivery of services. The detailed description of the roles of the different partners is summarized in Annex 3. The partnership has benefited from the diverse experience of each of the partners like skilled human resources. In turn, the partners expanded their knowledge and skills through joint meetings and workshops of various networks. The modality of collaboration between Eclasio and LC was made through coordination meetings with its partners. The partners invited each other during their meetings to ensure that there is a continuous exchange of ideas. To foster greater synergy with LC and the other key actors, the following were pursued by the project:

- Complementing the human resources
- Developing a common strategic framework for 2022-2026
- Organizing joint workshops
- Organizing joint activities

2.3 THE PROJECT DESIGN

The aim of SO1 (implemented by Eclasio), was to promote food sovereignty, to create favorable conditions to enable small-scale farmers to defend their rights and interests, get proper incomes from sustainable agricultural activities to durably maintain their living conditions above poverty line, empower women in their communities, and enable the youths to live with dignity. The target sectors are members of the National Federations of Farmer' Organizations composed of Agricultural Cooperatives in Takeo, Kampong Speu, Prey Veng, Svay Rieng, Battambang, Steung Treng, Siem Reap, Oddar Meanchey, Kampot, Kampong Cham, and Kampong Thom provinces.

The common Theory of Change envisioned is to improve the economic security of farmers and contribute

to reach better food sovereignty. The family farmers would have improved their agriculture productivity through sustainable and climate-resilient agriculture, and increased income through informal and formal, individual, and collective income generating activities. For this purpose, farmer's organizations (SHGs, FAs, ACs, UACs, FO-Federations) will be able to deliver quality and inclusive services to support farmers' technical knowledge and business skills.

The project is expected to generate learning and knowledge that are shared to farmers. The knowledge and technologies of the program which are borne out of research are transferred to farmers through networks, like ALiSEA. Knowledge can be published in the websites of ALiSEA, and shared in workshops, producing case studies and shared to members of the network.

To achieve the result, Eclosio conducted the following: (1) support sustainable agricultural development via agroecology techniques (please see Box 2) to reduce famers' expenses for chemical inputs and improve yields; (2) facilitate access to small irrigation system to improve yields and increase arable areas; (3) improve access to better quality of seed to reduce expense to buy seed, improve yields and adaptation to climate change; (4) strengthen capacities of FAEC and FCFD agricultural training services to contribute to improve farmers productivity and skills.

Small-scale farmer's agricultural production can be improved sustainably through better natural resources access and management. The program, thus, gave focus on transition to agroecology, seed production and access to water. The program also aims to create a sustainable seed supply system in which (1) farmer producers are able to produce high certified standard quality of seed, (2) have access to the market.³

Box 2. Concept of Agroecology⁴

Agroecology is the study of ecological processes applied to agricultural production systems. It encompasses the relationship between agricultural production systems and ecological processes. It includes all the techniques that allow agricultural practices to be more respectful of the environment and its ecological specificities. Agroecology is an interdisciplinary combination of agronomy, agriculture, scientific ecology, economics, and social sciences. It integrates practices such as organic farming, regenerative agriculture, some aspect of permaculture, and therefore contributes to sustainable development. This helps minimize the pressures on the environment and preserve the renewal capacity of the ecosystem.

2.4 RELEVANCE

Capacity of Service Providers. The UpScale project provides a model for technology dissemination through a Farmer-to-Farmer extension, where the farmers teach fellow farmers. The farmer-to-farmer extension also transmitted technologies through learning-by-doing and promotion of local innovations.

³ Uni4Coop Common Programme 2017-2021 Cambodia

⁴ <https://youmatter.world/en/definition/definitions-agro-ecology/#:~:text=Agroecology%20is%20an%20interdisciplinary%20combination,therefore%20contributes%20to%20sustainable%20development.>

The project provides a space to women and youths to participate in the decision-making in ACs and UACs to improve their business performance. The participation of youths brings to the ACs and UACs manpower that have higher education and can contribute to a more effective running of the business.

The UpScale project helps the ACs in accessing credits by linking the ACs with the micro-finance and banking organizations, improving the skills of farmers in managing capital and paying debts and development of business plans. The UpScale project plays an important role in building the capacity of members of the farmers. Eclosio worked with IRAM in developing a credit offer within the Agricultural and Rural Development Bank (ARDB) for the Agricultural Cooperatives. In 2016, the ARDB experimented and opened a window for banks and MFIs (such as ACLEDA, Chamroeun, AMK among others) to start a new credit system to support AC businesses. Later, the ARDB withdrew from this credit offer, based on the decision of the Board of Directors to only provide loans to individual rice-millers. In that pilot implementation, rice-millers could just pay for the services of ACs using the loan and ARDB did not extend credit to ACs anymore.⁵

2.5 EFFECTIVENESS

2.5.1 ACHIEVEMENT OF SO1 INDICATORS (SMALL-SCALE FAMILY FARMERS AND THEIR FAMILY MEMBERS STRENGTHEN THEIR CAPACITIES TO ACHIEVE FOOD SOVEREIGNTY, TO DEFEND THEIR INTERESTS TO GENERATE PRO-POOR GROWTH

To achieve this outcome, the projects undertake the following activities:⁶

1. Strengthen local partners (FO-Feds, FOs) institutional capacities in terms of technical, management, governance (improving among other the involvement of women and youth), advocacy and business management
2. Support to individual or collective initiatives (FO-Feds, FOs) to develop business by bringing coaching and facilitating access to necessary means (agricultural inputs, credit/grant, water access, etc.)
3. Strengthen small-scale farmers (men, women and young) skills and capacities for transition to agroecology
4. Develop a network of master farmers within FOs
5. Facilitate market access for small-scale farmers and their organizations through the identification of market opportunities and value chain development using among others digital tools
6. Conduct studies/researches to understand the constraints faced by small scale farmers and their organizations including gender and environmental issues, and develop strategies and models to support small scale farming adapted to Cambodian conditions, using among other digital technologies
7. Capitalize and disseminate the results of research/studies among small-scale farmers, partners and other stakeholder (Belgian and international NGO, local and Belgian universities, authorities, etc.) using among other digital technologies (website, social networks).

⁵ Personal Communication: Christophe Goosens

⁶ Uni4Coop Common Programme 2017-2021 Cambodia

SO1 has three indicators: (1) Income of the targeted farmers' family increases more than the average income of similar population in the framework of the program; (2) Cumulative amount of new or revised legal frameworks in favor of small-scale farmers and in consideration of gender, youth and environmental issues; and (3) Percentage increase of women and youth among FAEC operational actors. The extent by which the target indicators were achieved is shown in Table 5.

Table 5. Achievement of SO1 indicators

| | Target | Baseline/ Before the Project | Endline |
|---|---------------------------------------|--|--------------------------------------|
| 1. Income of the targeted farmers' family increases more than the average income of similar population in the framework of the program Remarks: The % increase is based on an increase of the average monthly income before the project (\$149) and endline monthly income (\$206) | 25% increase | \$149/month | \$206/month (38.26% increase) |
| 2. Percentage increase of women and youth among FAEC operational actors (%) (women; youth) | Women: 50 % Youth: 40 % | AE: Youth 2; Women 9 SEED: Youth: 0; Women 21 | Women: 55% Youths: 40% |

2.5.1.1 INCOME OF THE TARGETED FARMERS' FAMILY INCREASES MORE THAN THE AVERAGE INCOME OF SIMILAR POPULATIONS IN THE FRAMEWORK OF THE PROGRAM. About 82.1% farmers depend on paddy rice production and 31.3% on vegetable production (Table 6). Only 21% depend on rice seed production. There was an increase in the number of UpScale beneficiaries who engaged in paddy rice production (1.6%), vegetable and cash crops (5.1%), rice seed production (12.8%), production of chicken and ducks (7.7%), and pigs (2.6%).

Table 6. Source of income of UpScale beneficiaries

| Livelihood | Baseline | Endline |
|---|----------|---------|
| FARM | | |
| <input type="checkbox"/> Crop Production | | |
| ▪ Paddy Rice Production | 80.5% | 82.1% |
| ▪ Vegetables and Cash crops | 26.2% | 31.3% |
| ▪ Rice Seeds | 8.2% | 21.0% |
| ▪ Cassava | 2.6% | 2.6% |
| ▪ Fruit Trees | 0.5% | 0.5% |
| <input type="checkbox"/> Fishery | | |
| ▪ Fish Culture | 1.0% | 0.5% |
| <input type="checkbox"/> Poultry and Livestock | | |
| ▪ Chicken or Ducks | 27.2% | 34.9% |

| Livelihood | Baseline | Endline |
|---|-----------------|----------------|
| ▪ Cattle | 17.9% | 14.4% |
| ▪ Pigs | 5.1% | 7.7% |
| ▪ Chicken or Duck Eggs | 1.0% | 1.0% |
| NON-FARM | | |
| <input type="checkbox"/> Business | | |
| ▪ Running a Grocery Store | 7.7% | 8.7% |
| ▪ Sale cake | 1.5% | 2.6% |
| ▪ Selling Organic Farm Products | 1.0% | 1.5% |
| ▪ Selling of NTFPs | 0.5% | 0.5% |
| <input type="checkbox"/> Employment | | |
| ▪ Regular work salary | 23.1% | 26.2% |
| ▪ Wage labor (within district and province) | 22.6% | 24.1% |
| Remittances | | |
| ▪ Remittance from migrant Labor (outside Cambodia) | 1.5% | 2.1% |
| ▪ Remittance from migrant Labor (outside the province within) | 1.5% | 1.5% |
| OFF-FARM | | |
| <input type="checkbox"/> Employment | | |
| ▪ Regular Employment from Agricultural ELCs | 5.1% | 5.1% |
| ▪ Hired Unskilled Seasonal Farm labor | 3.6% | 3.6% |

The income of beneficiaries comes from farming (crop production, poultry and livestock) and non-farm activities. The survey indicates the overall average income (average of all sources) of UpScale beneficiaries increased from \$225.74/month from the baseline to \$285.06/month in the endline (Table 7). The income from farming is higher by 82.25% compared to baseline. The average income from farming increased from \$125.83/month to \$229.32/month. Majority have revenues higher than the costs. The estimated profit from farming has increased from \$72.77/month to \$137.37/month. Income from non-farm activities (from business, employment and remittances from the members of the family) also increased by 2.4%. In terms of income, rice seed production provides the highest average monthly income (\$862.26/month) followed by paddy rice production (\$676.35/month). Vegetable and cash crops provided an income of \$68.10/month.

Off-farm employment also posted a slight increase of 6.1% compared to the baseline. It was noted that those whose income depends on business were significantly affected. Their average income has reduced from \$311/month to \$232/month.

The improvement of the small farmers' incomes is the result of the farmers having access to better market prices. Some farmers who joined the Focus Group discussion revealed that during COVID 19, they experienced difficulty in terms of marketing the products. The traders stopped coming to the village to pick up the products. They also have difficulty transporting their products to the markets (Source: KII Small Scale Farmers IGA).

Table 7. Production and income of the UpScale beneficiaries

| Livelihood | Baseline | | | | | Endline | | | | |
|---|-----------------|--------------|-------------------|------------------------------|------------------------------|-----------------|--------------|-------------------|------------------------------|------------------------------|
| | Total Area Used | Total Prodn | Prodn tons per Ha | Average Income per Month USD | Estimated Monthly Profit USD | Total Area Used | Total Prodn | Prodn tons per Ha | Average Income per Month USD | Estimated Monthly Profit USD |
| FARM | | | | 125.83 | 72.77 | | | | 229.32 | 137.37 |
| <input type="checkbox"/> Crop Production | | | | 205.52 | 113.77 | | | | 350.07 | 213.92 |
| ▪ Cassava | 1.3 Ha. | 7.93 Tons | 10.60 | 84.59 | 52.55 | 0.7 Ha. | 14.4 Tons | 9.38 | 106.15 | 71.14 |
| ▪ Fruit Trees | 0.27 Ha. | 0.3 tons | 0.90 | 25.00 | 12.50 | 0.27 Ha. | 0.36 tons | 1.08 | 37.50 | 27.00 |
| ▪ Paddy Rice Production | 6.46 Ha. | 23.53 Tons | 4.16 | 490.96 | 284.20 | 6.27 Ha. | 31.35 Tons | 4.62 | 676.35 | 392.90 |
| ▪ Rice Seeds | 3.31 Ha. | 12.74 Tons | 4.35 | 368.56 | 185.77 | 5.81 Ha. | 36.98 Tons | 5.21 | 862.26 | 542.14 |
| ▪ Vegetables and Cash crops | 0.25 Ha. | 1.96 tons | 12.89 | 58.48 | 33.84 | 0.29 Ha. | 8.79 tons | 21.42 | 68.10 | 36.45 |
| <input type="checkbox"/> Fishery | | | | 12.38 | 5.63 | | | | 16.50 | 7.50 |
| ▪ Fish Culture | 556 sq.m. | 106 Kilos | | 12.38 | 5.63 | 471.67 sq.m. | 100 Kilos | | 16.50 | 7.50 |
| <input type="checkbox"/> Poultry and Livestock | | | | 54.57 | 38.30 | | | | 131.58 | 74.15 |
| ▪ Cattle | | 3.89 Nos | | 93.28 | 79.56 | | 3.46 Nos | | 107.54 | 84.95 |
| ▪ Chicken or Duck Eggs | | 106 Nos | | 40.00 | 22.88 | | 793.33 Nos | | 217.50 | 92.38 |
| ▪ Chicken or Ducks | | 49.43 Kilos | | 27.99 | 19.28 | | 97.76 Kilos | | 50.61 | 31.83 |
| ▪ Pigs | | 299.36 Kilos | | 57.03 | 31.48 | | 536.47 Kilos | | 150.65 | 87.46 |
| NON-FARM | | | | 358.50 | | | | | 367.13 | |
| <input type="checkbox"/> Business | | | | 310.73 | | | | | 232.27 | |
| ▪ Running a Grocery Store | | | | 802.50 | 242.82 | | | | 588.24 | 194.19 |
| ▪ Sale cake | | | | 366.67 | 37.50 | | | | 270.83 | 20.00 |
| ▪ Selling of NTFPs | | | | 15.00 | 15.00 | | | | 22.50 | 22.50 |
| ▪ Selling Organic Farm Products | | | | 58.75 | 142.50 | | | | 47.50 | 101.25 |
| <input type="checkbox"/> Employment | | | | 333.29 | | | | | 345.43 | |
| ▪ Regular work salary | | | | 390.61 | | | | | 363.58 | |
| ▪ Wage labor (within district and province) | | | | 275.97 | | | | | 327.29 | |
| <input type="checkbox"/> Remittances | | | | 600.00 | | | | | 950.00 | |
| ▪ Remittance from migrant Labor (outside Cambodia) | | | | 600.00 | | | | | 950.00 | |
| OFF-FARM | | | | 260.67 | | | | | 276.56 | |
| <input type="checkbox"/> Employment | | | | 260.67 | | | | | 276.56 | |

| Livelihood | Baseline | | | | | Endline | | | | |
|---|-----------------|-------------|-------------------|------------------------------|------------------------------|-----------------|-------------|-------------------|------------------------------|------------------------------|
| | Total Area Used | Total Prodn | Prodn tons per Ha | Average Income per Month USD | Estimated Monthly Profit USD | Total Area Used | Total Prodn | Prodn tons per Ha | Average Income per Month USD | Estimated Monthly Profit USD |
| ▪ Hired Unskilled Seasonal Farm labor | | | | 200.29 | | | | | 206.21 | |
| ▪ Regular Employment from Agricultural ELCs | | | | 321.05 | | | | | 346.90 | |
| AVERAGE INCOME | | | | 225.74 | | | | | 285.06 | |

Source: HH Survey

2.5.1.2 INCREASE OF WOMEN AND YOUTH AMONG FAEC OPERATIONAL ACTORS. Under this indicator, the project has exceeded the target of having at least 50 % of women and 40% of youths be involved in the FAEC operations. The strategy of FAEC to achieve the target was mobilizing the women and youth to join the operation activity (training, meeting, exchange visit, forum etc.). Also, FAEC provided a space for youths in the management structure. Now there are 2 young farmers including 1 woman in the Board. Family members strengthened their capacities to achieve food sovereignty through technical support and some small capital, capacity building on agriculture techniques and market for their products (Source: KII Small Scale Farmers Master Farmers). The respondents acknowledged the benefits of involving the youths to the project because they are highly educated and energetic. Involving them to work in the community also reduces migration and decreases the risk of being lured to drug addiction. Also, they can participate in training and capacity building. However, the respondents from Baksey Rik Reay AC reported that there is less participation from the youths because most of them wanted to earn a high salary and income (Source: Interview with Small Scale Farmers).

FAEC provided training to Service Providers on training curriculum, finance and bookkeeping, business plan and strategic planning, marketing, agricultural techniques (vegetables, rice, chicken, mushrooms). As a result, there were 138 service providers, including 83 men, 55 women and 41 young men, who improved their capacity and knowledge.⁷

2.5.2 SO1 RESULT 1: FARMERS (MEN, WOMEN, YOUNG) AND THEIR FAMILY IMPROVED SUSTAINABLY THEIR PRODUCTION THROUGH BETTER NATURAL RESOURCES ACCESS AND MANAGEMENT

The project supported the small-scale family farmers in increasing their productivity and transiting to agro ecological production system. An agroecology platform is established to create and exchange knowledge adaptable and replicable in other areas. A seed supply system is implemented to improve production yields and value of crops. Under this Result, the project has the following targets (Table 8):

1. Number of family farmers having access to on-farm small irrigation system: 25
2. The number of AE techniques adopted by targeted family farmer increases: 70%
3. Percentage of production' quantity increases (compared to baseline): rice (30%), rice seed (200%), chicken (100%), and vegetables (100%)⁸

⁷ FAEC Report for ending UpScale program

⁸ Uni4Coop Common Programme 2017-2021 Amodia

Table 8. Target and Progress under SO1 R1

| | Target | Baseline | Endline |
|---|--|---|--|
| <p>1. Amount of family farmers having access to on-farm small irrigation system</p> <p>Remarks: The families connected to irrigation in the endline: 41.9%</p> | 25 | 10 | 30 families benefited |
| <p>2. The amount of AE techniques adopted by targeted family farmers increases</p> <p>Remarks: Adopters before the project: 12.4%; adopters in the endline: 41.5%</p> | 70 % | 188 HHs | 41.5% (endline)/235% increase |
| <p>3. Percentage of production' quantity increases (compared to baseline) for rice, rice seed, chicken, vegetables</p> | <ul style="list-style-type: none"> ▪ 30% (paddy rice) ▪ 200% (rice seed) ▪ 100% (chicken) ▪ 100% (vegetable) | <ul style="list-style-type: none"> ▪ paddy rice: 4.16 t/Ha. ▪ rice seed: 4.35 t/ha ▪ chicken: 49.43 kilos/HH ▪ vegetables: 2.89 t/Ha. | <ul style="list-style-type: none"> ▪ paddy rice: 4.62 t/ha (11.1% increase) ▪ rice seeds: 5.21 t/ha (86% increase) ▪ chicken: 50.61 k/HH (2.39% increase) ▪ vegetables: 21.42 t/ha (66.18% increase) |

To command a better price, the project supported the collective marketing of farmers. A collection point has been set up where the farmers bring the chicken and the buyer can pick up (Figure 3). While the concept appears pragmatic, the danger of bringing chicken from different sources was overlooked. Chicken are very sensitive to diseases which can immediately spread within a day. While vaccination has been promoted by the project, there are still high risks of infection from other farmers' chicken. Instead of a common collection point for live chicken, the scheme should be modified by supplying dressed chicken, and this requires putting up a chicken slaughterhouse. When the chicken is brought to the slaughterhouse, these are immediately slaughtered and dressed upon inspection.



Figure 3. Chicken collection point

2.5.2.1 AMOUNT OF FAMILY FARMERS HAVING ACCESS TO ON-FARM SMALL IRRIGATION SYSTEMS. In baseline study, limited access to irrigation during the dry season has been reported as a challenge during the study. At household level, the majority of the respondents relied on ring wells and pump wells for channeling the water to their houses and farms. Respondents used both natural and man-made water resources for agricultural activities at the farm level. Natural rivers and lakes played a major role in providing irrigation to farmers. The project has put up a small irrigation system for the small scale farmers to increase the production. Under this indicator, the project targets at least 25 members who access the irrigation. There are 30 families benefited by the small-scale irrigation. The accomplishment exceeded the target of 25 families. One factor that contributed to the empowerment of production of farmers is the irrigation that was put up by the project with the collaboration of Irrigation Service Center (ISC). Ponds were built to support the production of vegetables using pipes and provide overhead sprinklers (Figure 4).



Figure 4. Irrigation system of the farmers

The project provided 30% subsidy for ID poor 1 and 50% for Non-ID Poor farmers. The small irrigation system supported by ISC reduced labor, saved time and money and increased vegetable production. Some

Farmer Specialists of ACs were provided capacity building in irrigation system installation and equipped with irrigation materials.⁹

In a household survey, 41.9% (close to half of the respondents) reported they are connected to the small irrigation project (Table 9). The irrigation provides 50% subsidy to the farmers in putting up an irrigation system (Source: Interview with Small Scale Farmers).

Table 9. Beneficiaries who are connected to the irrigation system

| Connected to Irrigation System | Battambang | Kampong Thom | Prey Veng | Takeo | TOTAL |
|--|--------------|--------------|--------------|--------------|--------------|
| Connected to Irrigation | 61.0% | 38.0% | 45.7% | 34.2% | 41.9% |
| ▪ 50% Funding from Upscale Project to dig the well/Buy Materials | - | - | - | 6.3% | 2.1% |
| ▪ Don't know | - | 3.8% | - | 2.5% | 2.1% |
| ▪ Drill tube well by own self | 2.4% | 1.3% | - | - | 0.9% |
| ▪ Dug pond by myself | - | - | - | 1.3% | 0.4% |
| ▪ Irrigation Service Center (ISC) | - | - | - | 1.3% | 0.4% |
| ▪ Kamping Puy Basin Lake | 4.9% | - | - | - | 0.9% |
| ▪ Public canal | 48.8% | 26.6% | 45.7% | 22.8% | 32.1% |
| ▪ Well provided by NGO/Community | 4.9% | 6.3% | - | 1.3% | 3.4% |
| Not Connected to Irrigation | 39.0% | 62.0% | 54.3% | 65.8% | 58.1% |
| N | 41 | 79 | 35 | 79 | 234 |

Source: HH Survey

In terms of efficiency, more than half of the respondents indicate the water management of the small scale irrigation is not very efficient but at least tolerable (Table 10).

Table 10. Level of efficiency in the management of the small irrigation system by farmer groups

| Efficiency of Management of Irrigation System | Battambang | Kampong Thom | Prey Veng | Takeo | TOTAL |
|---|------------|--------------|-----------|-------|-------|
| The water management is not good , very inefficient and we have a lot of things to complain on its management | - | 7.6% | 8.6% | 6.3% | 6.0% |
| The water management is not very efficient but tolerable | 65.9% | 55.7% | 51.4% | 43.0% | 52.6% |
| The water management is slightly efficient and may need some improvement | - | 1.3% | - | 16.5% | 6.0% |

⁹ Personal Communication, Christophe Goosens

| Efficiency of Management of Irrigation System | Battambang | Kampong Thom | Prey Veng | Takeo | TOTAL |
|--|------------|--------------|-----------|-----------|------------|
| The water management is very efficient and we are all very satisfied | 14.6% | 12.7% | 14.3% | 21.5% | 16.2% |
| Not applicable (do not have access to irrigation) | 22.0% | 22.8% | 25.7% | 15.2% | 20.5% |
| N | 41 | 79 | 35 | 79 | 234 |

Source: HH Survey

The use of the small irrigation is meant to support the vegetable production of the farmers and has contributed to farmers' income. The farmers have participated in the identification of water sources as well as the use of their lands to be irrigated.

2.5.2.2 AMOUNT OF AE TECHNIQUES ADOPTED BY TARGETED FAMILY FARMER'S INCREASES. The project targeted 70% of the farmers who adopted the AE techniques. Before the project, only 12.4% of the respondents adopted AE practices (Table 11). At the endline survey, 41.5% of the respondents adopted AE practices which represent an increase of 235%. Training on rice seed production techniques has been conducted to farmers in partnership with other NGOs, which also include training on business plan and bookkeeping, poultry raising, vegetable planting, agriculture techniques, rice seed production techniques, credit and capital. The beneficiaries were provided capacity building for SHG Committee members on leadership, management. The project provided land cover crop planting materials to the farmers, oriented them to the benefit of cover crops (Source: KII Small Scale Farmers and Master Farmers), and capital and agricultural inputs (Source: KII Small Scale Farmers). In Takeo, the farmers practiced composting, keeping the chemical fertilizers and pesticides wastes in the proper place and producing feed for chicken (Source: Interview with Small Scale Farmers).

Table 11. Type of farming method practiced

| Farm Practices/AE technologies used | Before the Project | Endline |
|---|--------------------|---------|
| Used Traditional Method/Did Not Adopt Technology | 87.6% | 58.5% |
| Adopted AE Technology | 12.4% | 41.5% |
| ▪ Use of Organic Fertilizers and Organic Pesticides | 12.4% | 41.5% |
| ▪ Soil and Water Conservation | 1.3% | 12.4% |
| ▪ Agroforestry | 1.7% | 11.1% |
| ▪ Livestock raising using modern technique | 0.0% | 5.6% |
| ▪ No Tillage Agriculture | 1.7% | 2.6% |

Source: HH survey

2.5.2.3 PERCENTAGE OF PRODUCTION' QUANTITY INCREASES FOR RICE, RICE SEED, CHICKEN, VEGETABLES. The UpScale project targeted an increase of production by 30% for paddy rice, 200% for rice seed, 100% for chicken and 100% for vegetable (Table 8). The result of the assessment showed the production of the farmers increased, the extent of increased production is below the target production. The increases in production are as follows: paddy rice=11.1% increase, rice seeds = 86% increase, chicken = 2.39% increase and vegetables = 66.18% increase. It is in the belief of the assessment team that the target set by the Project Design is too high and unrealistic. For instance, the project sets the target increased production of paddy

rice by 30%. Based on the baseline level of production of 4.16 t/ha, the target means that the farmer should reach approximately 5.41 t/ha. This level, while attainable, is deemed high for Cambodian farmers. The production of rice seeds is unrealistic. With the target of 200% increase, it means the production of farmers should reach 8.7 t/ha. While this is attainable, this target is very high if we compare the production level of other countries. The same has been observed in other commodities. The production is expected to go higher once the farmers' land will be fully rehabilitated with continuous use of agroecology technologies. In the short term, the use of organic fertilizers has not yet fully provided full benefits. This could be due to the nature of organic fertilizers that slowly release its nutrients compared to chemical fertilizers. It may take time before the organic matter decomposes and is converted to nitrates that are usable to plants. However, the benefits it contributes to the soil will ultimately provide higher yield when the soils are fully rejuvenated and improved its biophysical condition.

2.5.2.4 CLIMATE CHANGES AND DISASTER. The FGD and KII revealed that farmers experienced frequent drought and flooding. They were able to cope with the problems of climate change with the support from PDAFF. The staff from PDAFF were attend in some meetings where they share information on climate change and encourage the farmers to adopt climate-resilient farming techniques. The extreme temperature reportedly affected the outbreak of animal and poultry diseases. One key informant reported a storm happened a year ago that destroyed several houses.

2.5.3 SO1 RESULT 2: ORGANIZED SMALL-SCALE FARMERS INCREASE THE TOTAL VALUE OF THEIR PRODUCTION THROUGH BETTER ACCESS TO MARKET AND ALLOWS THE CREATION OF JOB AND BUSINESS OPPORTUNITIES

This Result has the following indicators: (1) % of increase of quantities of products sold collectively by agriculture cooperatives (compared to the baseline); and (2) Number of cooperatives scoring over 80/100 on SCM grid. The achievement of this indicator is shown in Table 12.

Table 12. Achievement of SO1 R2 indicators

| | Target | Baseline | Endline |
|---|--------|----------|--|
| 1. % of increase of quantities of products sold collectively by agriculture cooperatives (compared to the baseline) Remarks: This 410% compared to the baseline | 40 % | 45 tons | 210 tons of fertilizer supplied to ACs under FAEC facilitation ¹⁰ |
| 2. Number of cooperative scoring over 80/100 on SCM grid Remarks: Even though, the program was no longer supported since 2020 but FAEC provided capacity building through coaching, training and self-assessment through the FAEC member meeting in 2021 | 20 | 13 | 20 |

¹⁰ Report for ending UpScale program, item 2.1, p.4

2.5.3.1 PERCENTAGE OF INCREASE OF QUANTITIES OF PRODUCTS SOLD COLLECTIVELY BY AGRICULTURE COOPERATIVES (COMPARED TO THE BASELINE). The project achieved the target. As shown in Table 12, the ACs sold inputs by 410% compared to baseline. Based on internal monitoring of the project, a total of 210 tons of fertilizers have been supplied to ACs facilitated by FAEC.

The main purpose of setting up the Union of agriculture cooperatives (UAC) is to combine AC as members and can buy or sell collectively with appropriate price. UAC plays as coordinator in contracting the Company or Rice Millers to sell rice or buy agricultural inputs with good price and sub-contract with AC to buy rice or sell agriculture inputs to AC.

The production of quality rice-seeds and the collective sale through Agricultural Cooperatives and FAEC is an important component of UpScale project as it provides opportunities for FAEC and FCFD to jointly undertake this service for better efficiency; it enables the FO to make substantial income; increase visibility and legitimacy of FAEC and FCFD, and it respond to farmer' most pressing priority. The rice-seed business system includes production trainings, the set-up of organizational arrangements for collective sale (organizing volumes of production, distribution system to buyers, quality control through PGS (Participatory Guarantee Systems) it is based on the collective purchase of "Foundation-Seeds" from CARDI and the reproduction of these seeds to be sold as "Certified-Seeds". In the 5 years, FAEC has facilitated the sale of quality rice seed produced by farmer with total of 456 tons, and 1,239 tons of fertilizer are facilitated for sale to all ACs member while 11,012 tons of paddy rice produced by farmer member was sold. Around 70% increase of quantities of products sold collectively by agriculture cooperatives because AC link middleman to buy farmers products in the community. However, TrUAC who are operating around 3 months, have no products sold collectively. The farmers sold their products through middlemen or market by themselves (Source: KII Small Scale Farmers Business Linkage). The farmers sell the product through middlemen or individually because AC cannot find a market for the product. In addition, by 2020, FAEC facilitated the sale of paddy rice produced by farmer with a total of 11,012 tons. TrUAC, has not yet started its business activity. At the time of the evaluation, TrUAC was just established for 3 months and have not yet established business or office. They occupied a space in Baksey Rikreay AC office as temporary office.

It was noted that some farmers do not differentiate rice-seeds and paddy rice; or do not value rice-seeds produced. As rice-seeds are usually purchased in May for the next rice-campaign, some farmers sell the rice-seeds they produced in December as they need money and could not wait until May. Some dealers collect paddy rice and sell it as rice-seed to farmers cheaper than FAEC certified rice-seed.

The most important problems experienced by ACs are the lack of capital to buy rice seed/paddy rice from members and no suitable place to store the rice (warehouse), and the lack of capacity and knowledge on the rice market. The project encouraged the ACs to prepare a business plan and seek loans from banks and microfinance institutions, as well as provide training to strengthen the capacity of committees and service providers at ACs in the rice business plan. Some Small Scale Farmers reported that no products sold collectively by agriculture cooperatives because the farmers sell their products to middlemen or sell by themselves (Source: KII Small Scale Farmers).

2.5.3.2 NUMBER OF COOPERATIVE SCORING OVER 80/100 ON SCM GRID. The progress report indicates the target has been achieved. There were 20 FOs receiving scores over 80/100 on SCM grid (Table 12). The target

for the program is for at least 20 ACs to reach a target of 80 points.¹¹ The SCM scoring was applied in ACs assisted by MB in Kampong Thom province.

2.5.3.3 DEMAND FOR AE PRODUCTS. The households interviewed revealed the demand for agroecology products is increasing (Table 13). The demand for AE products has increased because people are becoming health conscious. However, there are several farmers who do not practice the AE techniques (Source: Interview of Small Scale Farmers) and still use chemical fertilizers. They claimed that if they used organic fertilizers, the effect would take time and slow compared to chemical fertilizers (Source: KII TrUAC and BUAC).

Table 13. The trend of the demand for agroecosystem products

| Demand of Agroecology Products | Battambang | Kampong Thom | Prey Veng | Takeo | TOTAL |
|--------------------------------|------------|--------------|-----------|-----------|------------|
| The demand is increasing | 65.9% | 67.1% | 40.0% | 62.0% | 61.1% |
| There are no major changes | 31.7% | 30.4% | 60.0% | 35.4% | 36.8% |
| There is a decrease of demand | 2.4% | 2.5% | 0.0% | 2.5% | 2.1% |
| N | 41 | 79 | 35 | 79 | 234 |

Source: HH Interview

2.5.4 SO1 RESULT 3: FOS AND THEIR MEMBERS IMPROVE THEIR ACCESS TO FINANCE TO DEVELOP PRODUCTION AND COLLECTIVE COMMERCIALIZATION

This result has three indicators: (1) Cumulative amount of ACs getting access to finance for AC collective commercial activities; and (2) % of AC capital increases during the program (compared to the baseline). All the targets under this result were achieved by the project. The achievement of the targets under this result is shown in Table 14.

Table 14. Table. Achievement of the SO1 R3 indicators

| | Target | Baseline | Endline |
|---|--------|-------------------|---------|
| 1. Cumulative amount of ACs getting access to finance for AC collective commercial activities | 20 | 0 | 28 |
| 2. % of AC capital increases during the program (compared to the baseline) | 30 % | \$5,000 (average) | 52% |

2.5.4.1 ACCESS OF ACs TO FINANCE FOR COLLECTIVE COMMERCIAL ACTIVITIES. FAEC coordinated with local banks and microfinance institutions such as ACLEDA Bank Plc.; Chamroeun Microfinance Institution Plc.; AMK Microfinance Institution Plc.; Prasak Microfinance Institution Plc.; and Idemitsu Saison Microfinance (Cambodia) Plc. There were 28 ACs who received loans with a total amount of \$555,650 with low interest rates ranging from 1-1.5% / month.¹² FAEC has strong cooperation with MFIs and Banks to promote ACs access to finance capitalization for the expansion of existing business products or starting new business products. The loan could give ACs members of FAEC, the opportunity to expand their collective business. Many ACs still do not have properties (land title and warehouse) to be used as collateral to the financial

¹¹ LC. (Undated). *Impact Assessment of Food and Economics Security (FES) Project. Louvain Cooperation: Phnom Penh, Cambodia.*

¹² Report for Ending Upscale Program, Item 3.1, p. 6.

institutions and have no clear business and marketing plans. FAEC provided training to strengthen the capacity of the AC Committee and provided direct coaching on the production of business and marketing plans, as well as other documents required by the Bank. The project did not pursue the facilitating of loans from the Agriculture and Rural Development Bank (ARDB) because of a complicated process in applying a loan and bureaucratic requirement to present proofs of the property ownership that will be used as collateral. Also, the ARDB is extending loans to rice-millers only.

2.5.4.2 % OF A-C CAPITAL INCREASES DURING THE PROGRAM. There were 30 ACs equivalent to 52% of the total FAEC members who had increased their capital (\$5,000 average). Majority of the AC capital increases during the program. The capital of BUAC before is 16,000,000 KHR (\$4,000) and 22,000,000 KHR (\$5,500) recently (Source: KII TrUAC and BUAC).

Box 3. Capital formation of Balang Sethaphy Agricultural Cooperative¹³

Balang Sethapy agricultural cooperative started in 2020. At that time, they sold 225 bags of fertilizer. It earned a profit of 2,250,000 riels (\$5,625) which was used for increasing their capital. There were 20 farmers who bought organic fertilizer from the AC and local distributors for the production of rice, cassava, cashew and vegetable. In 2021, the demand for organic fertilizer increased. There are 1,140 bags sold by the AC to 6 local distributors and to 110 farmers. The agricultural cooperative used the earnings from selling fertilizer in providing loans to its members. The revenues were used in increasing the capital of the AC.

2.5.4 SO1 RESULT 4: FO IMPROVE SKILLS AND CAPACITIES TO MANAGE THEIR STRUCTURES AND ADVOCATE FOR SSFF INTEREST INCLUDING THOSE FOR WOMEN AND YOUTHS

The project creates a sustainable system in which FOs could provide adequate services, protect and defend rights and interests of the members. The project works on improving governance and services of FOs and on supporting their advocacy actions. The result has the following indicators:

1. Amount of qualified Service Providers of FAEC /FCFD trained and are operational (men/women/youth)
2. Amount of FAEC /FCFD annual services delivered to FOs and individual members
3. Increased percentage of FAEC / FCFD AC members

The progress of achieving these indicators is shown in Table 15.

Table 15. Achievement of the SO1 R4 indicators

| | Target | Baseline | Endline |
|--|-----------------------------------|----------------------------|--|
| 1. Amount of qualified Service Providers of FAEC /FCFD trained and are operational (men/women/youth) | 55 (35 men/20 women/10 youths) | 24 (20 men/5 when/1 youth) | 138: 83 men, 55 women and 41 young men |
| 2. Amount of FAEC /FCFD annual services | 150 | 50 | 150 |

¹³ Ma Sok Heng and Khem Thann. 2021. *Business Operation of Agriculture Cooperative, FES Project 2017-2021, Kampong Thom, Cambodia*

| | Target | Baseline | Endline |
|---|--------|----------------------|---------|
| delivered to FOs and individual members | | | |
| 3. Increased percentage of FAEC / FCFD AC members | 50 % | FAEC: 34 FCFD: 22 | 48% |

2.5.4.1 AMOUNT OF QUALIFIED SERVICE PROVIDERS OF FAEC /FCFD TRAINED AND ARE OPERATIONAL (MEN/WOMEN/YOUTH). The project has achieved this target. There was different type of Specialist Trainers:

1. *Business planning*: 8 were trained, none of them were used by FAEC
2. *Simple AC accounting*: 12 were trained, only 1 remain active
3. *Agriculture Techniques*: Several skills were provided under the ToT and training materials (e.g. 48 Specialist Trainers on rice-seed production)

Master Farmer Trainers are farmers engaged in agricultural related activities in the farms applying agri hi-tech or agro-ecological practice in order to introduce best practice to other farmers. Model farmers can share their experience especially to SHG members (Source: KII MB). They serve as advisors or trainers in the locality. In addition to the Specialists Trainers, there were Model Farmers (also called Master Farmers) who were used for the extension of production techniques.

All agricultural cooperatives have their own Master Farmers and Specialist Trainers to upgrade its capacity and knowledge. The AC committee selected a committed farmer that has agricultural land and is willing to cooperate. The selected farmers were trained, and participated in other training and exchanged visits to other ACs in provinces to get more knowledge. After the training, the trained farmers shared the knowledge to other farmers (Source: KII Small Scale Farmers). The Master Farmers and Specialist Trainers can effectively provide knowledge transfer to AC members through demonstration, follow up, and provide direct coaching to the local farmers since they are local residents of the area.

FAEC supported master farmer trainers and Specialist Trainers based on the agricultural cooperative’s needs and their priorities. Per producer groups, there are 3 master farmer trainers who provide knowledge transfer and follow up the membership. FAEC provided capacity building to trainers (Service provider) on skills, training curriculum, finance and bookkeeping, business plan and strategic planning, marketing, agricultural techniques (vegetables, rice, chicken, mushrooms). To make the Farmer-to-Farmer extension more effective, there is a need for the Master Farmers to develop their skills (See Box 4)

Box 4. Farmer- to-Farmer Led Extension Service¹⁴

Model Farmer Trainers are the farmers who engaged in agricultural activities in the farms and had experience in new agricultural technologies or agroecological practices, so that they can introduce best practices to other farmers. They are the advisors and trainers for their local communities, where fellow farmers could come to seek support when they have problems.

Under the facilitation of FAEC, all agricultural cooperatives recruited their own MFTs (except Prasat Taing Krasaing AC which was just established in November 2021). FAEC selected MFTs from the ACs and trained them on sustainable agriculture with support of documents and budget. They supported MFTs based on the

¹⁴ MA Sok Heng and SAVUN SamOl. Farmer to Farmer Led Extension Service. FES Project 2017-2021, Kampong Thom, Cambodia.

needs of ACs and their priorities. In each producer group (rice, chicken, or vegetables) of an AC, there are 3 MFTs who were trained for sharing knowledge to the members. The MFTs are the key actors in each AC. They can provide knowledge to an AC's members by demonstration, following up, and direct coaching. Totally, there are 44 master farmers in four AC that were chosen by their organization. They received capacity building (technical, curriculum preparation, and training methodology) from experts (FAEC, PDAFF, CIRD) through the FES project. Not all the registered MFTs have joined those training from experts due to COVID-19 pandemic. The local authority prohibited event meetings until July 2021 and when the local authority allowed the event meeting, it continued to limit participants by allowing only 10 to 12 people per meeting. So, the recently registered MFTs in 2021 some of them haven't received the training.

Some of the MFTs are experienced in transferring technical knowledge and best practices to local farmers. They shared their experience during the training, farmer meeting and on farm activities. Their training activities were facilitated and supported by FAEC (FES project), such as expenses for trainers and participants, session plan preparation, curriculum development, and other training materials. All the MFTs have different knowledge and experiences. Among the 44 MFTs, there are only 9 MFTs who were ready to transfer knowledge to local farmers although most of the MFTs received capacity building through FAEC training at least one time after their registration as local MFT. There are also other organizations providing training to strengthen their technical skills. The capacity of some MFTs is still low, less active, and lack of experience for transferring knowledge in the region. The MFTs need more coaching to build their capacity to conduct "farmer to farmer-led extension system (F2FES)". The technical support from the project is very important for improving their knowledge and experiences. Also the agricultural cooperatives still have no clear plan or ability (budget, expert) to lead the activities for strengthening the MFTs.

The F2FES is the best way to sustain knowledge transfer at farmer levels, since farmers could rely on local experts nearby with low cost and easy communication to strengthen the ACs and support their agricultural practices. Through the interview, the service charge for a MFT to conduct training was 10USD/day, and the traveling fee was around 0.25\$/km. This fee is much lower than other external experts from outside sources.

2.5.4.2 AMOUNT OF FAEC /FCFD ANNUAL SERVICES DELIVERED TO FOS AND INDIVIDUAL MEMBERS. The project achieved this target. FAEC provided 150 services to the FOs and individual farmers. The project supported two Farmers Federations (FAEC and FCFD) for sustainable seeds supply service to its members. The program has provided FOs skill improvement and capacities to manage their structures. To be sustainable, FAEC and FCFD required ACs to pay minimum service fees which enabled them to support those ACs in the future.¹⁵

2.5.4.3 INCREASED PERCENTAGE OF FAEC / FCFD AC MEMBERS. This indicator has been underachieved, i.e. the project has achieved only 48% as against its target of 50%. This shortfall of achieving this indicator is due to FAEC's change of strategy in 2020 by reducing some of the members who were not actively engaged and due to the irregularities and internal conflicts within FAEC. During a meeting with the FAEC Board of Directors, the Audit Team presented the issues related to their audit findings on the anomalies pertaining to irregular expenditures of FAEC related to 3 projects, including UPSCALE, AFDI and Louvain from August, 31st 2019 – August, 31st 2020. The audit team conducted their research during a meeting with the farmers as beneficiaries, suppliers, restaurant owners and representative's agricultural cooperatives in Battambang, Svay Rieng, Kampong Thom and Takeo provinces. The audit team found a total of \$37,060.75 that were fraudulently disbursed during involving 4 staff of FAEC. As a consequence, the FAEC Board of Director decided to remove from their position those who were involved of the anomaly.¹⁶ The

¹⁵ *Lessons learnt BE-BCE_KBO-0432503697-PROG2017-2021_cambodiaOS1_PS_2018*

¹⁶ Eport of FAEC Board of Director Meeting

internal problems of FAEC has affected the institutional management and cooperation with other projects. The issue at FAEC created discord among its members. The membership of FAEC have declined as some ACs withdrew their membership. The scandal at FAEC could have resulted to some FAEC members marketing directly their products to the companies or buying inputs directly from the suppliers (please see Section 2.5.3.1 and Section 2.10 item 4).

2.5.5 SO1 RESULT 5: ACTORS SUPPORTING SMALL-SCALE FAMILY FARMERS AND THEIR FAMILY' MEMBERS ARE SHARING AND IMPROVING THEIR PRACTICES AND APPROACHES

The SO1 R5 Result has the following indicators:

1. Cumulative number of studies published during the program
2. Cumulative number of collaboration with other actors on exchanges of experiences and capitalization of knowledge processes developed during the program

The achievement of the target indicators under this result are shown in Table 16.

Table 16. Achievement of the SO1 R5 indicators¹⁷

| | Target | Baseline | Endline |
|---|--------|----------|---------|
| Cumulative number of studies published during the program | 10 | 0 | 13 |
| Cumulative number of collaboration with other actors on exchanges of experiences and capitalization of knowledge processes developed during the program | 10 | 0 | 20 |

2.5.5.1 CUMULATIVE NUMBER OF STUDIES PUBLISHED DURING THE PROGRAM. This indicator is overachieved (i.e. 13 studies vs. target of 10). FAEC was focused on the collaboration, consultation, exchange of knowledge and management experiences with various agricultural networks (ALiSEA, CamboDHRRRA), including farmers' organizations, professional organizations, private sector, government, including, AC platform steering committee, AWG-NGO forum, AFDI. During the 5 years of program, FAEC has produced the agricultural booklets and videos such as Bokashi value chain, rice seed production techniques, rice seed marketing, safe vegetable production techniques, chicken raising techniques, mushroom growing techniques, of which 13 documents have been produced, distributed and published to farmers via social media in Telegram and FAEC Facebook Page.¹⁸

2.5.5.2 CUMULATIVE NUMBER OF COLLABORATIONS WITH OTHER ACTORS ON EXCHANGES OF EXPERIENCES AND CAPITALIZATION OF KNOWLEDGE PROCESSES DEVELOPED DURING THE PROGRAM. This indicator was overachieved (i.e. 20 achieved out of the target of 10). The extension system established by Eclasio is based on establishing horizontal knowledge transfer using the "Farmer-to-Farmer' Extension System". It includes building capacities of Farmer Specialist Trainers, Master-Farmers, and Model Farms. Capacities were strengthened and responsibilities were distributed to farmer leaders to undertake functions related to

¹⁷ FAEC Report for Ending UpScale Program, Item 5.1, p. 9 |

¹⁸ FAEC Report for ending UpScale program

collective work, such as leading AE Product Selling Groups, or undertake training. The team was trained on a “behavior changes” approach in order to improve the way projects are implemented.¹⁹

The Service Providers under the Uni4Coop Program provide training to farmers in the target area and get 15 to 20 USD per day for the services they rendered. There were 25 service providers trained by FAEC. FAEC is finalizing a profile of providers which will be shared to the partners and other NGOs. CIRDC worked on a Participatory Guarantee System (PGS) on rice seeds. It is a system that evaluates the quality of the product, consumer, producer and buyer (KII LC).

2.6 EFFICIENCY

The activities of the UpScale project were efficiently implemented. The targets were achieved according to plan. The program was coordinated by a steering Committee composed of Eclasio and FAEC, providing strategic direction to the program coordinator. To reach the intended result, the program is organized into 7 components: AE, Seed, Access to market, Access to finance, FO capacity building, Advocacy and Capitalization of Knowledge. The different components have specific responsible persons directed by the program coordinator. Regular coordination meetings were organized to update progress, issues and challenges of each component and review the next plan activities. Annual operational and budget planning are discussed and validated by the steering committee where inefficient activities were analyzed, deleted or replaced. The program coordinator assures a complementary and synergy among the component to save funds and the expenses were strictly monitored according to financial procedures. The program result was monitored through the monitoring report and coordination meeting to assure the efficiency and effectiveness of each component. In case some actions were not efficient, the head of component and relevant staff submitted corrective actions to the Program Coordinator and steering committee to validate. Eclasio works and coordinates with donors and other supporters to avoid redundancy and make efficient use of the staff (ex. the salary of the general secretary and accountant and running cost of FAEC are partly contributed by AFDI).

The total fund utilization is 92.8%. The variance for UpScale project is less than 8% which indicates a better fund utilization (Annex 12). There are some Components however that the project has exceeded the budget. The expenditure (\$870,881) for management has exceeded the budget (\$850,1258). Furthermore, the budget for Management accounts for almost 70% from the overall budget.

There was a slight delay of achieving some of the deadline due to the issues FAEC was involved. Some of the targets were not met due to the governance issues and conflicts within FAEC. Although there were some shortcomings, UpScale Project has exceeded the target.

The overall use of the resources is moderately efficient. The efficiency is estimated to be 69.7%. This is estimated as a ratio between the output and the input of the project. The utilization of the financial resources (Inputs) is estimated 92.8% (Annex 12) while the accomplishment is estimated to at 64.7% (Annex 10) while the efficiency is estimated to be 69.7% (output/input = 64.7%/92.8%). It was noted that the allocation is heavily focused on the Management, accounting for 69.7% of the overall expenses (annex 12). Compared to budget allocation, the expenses are 102% (higher compared to the budget). One of the major contribution of the deviation from the budget is the cost incurred by FAEC.

2.7 IMPACTS OF THE INTERVENTION

¹⁹ *Lessons-learned 2019 for Cambodia*

2.7.1 Viability of Income-Generating Activities

The result of the assessment has demonstrated the viability of the different income-generating activities that were implemented by the project. As indicated in Section 2.5.1.1, the farmers posted profits of farming activities. The production is also higher compared to the baseline.

2.7.2 Levels of Use of Outputs Produced by the Project

Currently, the level of production of the UpScale beneficiaries are on semi-commercial level (i.e. the income comes from selling almost 50% of the products produced (Table 17). When it comes to the use of the surplus production there are 44.6% who used the surplus for the buying of basic necessities such as food, clothing and medicine. There are 19.5% who used the surplus for capital formation to expand the business, invest on equipment (7.2%) and buy lands (5.6%). The common means of expanding the sales of the UpScale beneficiaries is to expand the area for cultivation either by renting or expanding the cultivated areas in their own lands (28.7%).

Table 17. Production level of the UpScale beneficiaries and use of their surplus

| Farm Production Level | Battambang | Kampong Thom | Prey Veng | Takeo | Total |
|--|----------------|----------------|----------------|----------------|----------------|
| PRODUCTION LEVEL | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% |
| ▪ For subsistence only (majority of the production is for consumption) | 14.61% | 30.00% | 14.29% | 41.80% | 28.70% |
| ▪ Semi-Commercial (generate income from selling almost 50% of farm products) | 58.50% | 50.00% | 62.84% | 40.50% | 50.30% |
| ▪ Commercial (depend most of the income from sale of farm products) | 26.89% | 20.00% | 22.87% | 17.70% | 21.00% |
| USE OF THE SURPLUS | | | | | |
| ▪ Used for basic necessities (food, clothing, medicine) | 36.60% | 32.50% | 54.30% | 50.60% | 44.60% |
| ▪ Used to buy appliances | 22.00% | 22.50% | 17.10% | 27.80% | 23.60% |
| ▪ Used for the education of my children | 7.30% | 10.00% | 28.60% | 27.80% | 20.00% |
| ▪ Formation of capital to expand business | 17.10% | 22.50% | 8.60% | 24.10% | 19.50% |
| ▪ Used to invest on equipment | 2.40% | 2.50% | 8.60% | 11.40% | 7.20% |
| ▪ Used to pay off the debts | 9.80% | 7.50% | 0.00% | 7.60% | 6.70% |
| ▪ Used to buy lands | 0.00% | 10.00% | 14.30% | 2.50% | 5.60% |
| ▪ Used to repair the house | 4.90% | 5.00% | 0.00% | 2.50% | 3.10% |

| Farm Production Level | Battambang | Kampong Thom | Prey Veng | Takeo | Total |
|--|----------------|----------------|----------------|----------------|----------------|
| BENEFICIARIES WHO INVESTED PART OF THEIR INCOME | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% |
| ▪ Did Not Invest | 82.90% | 82.50% | 88.60% | 78.50% | 82.10% |
| ▪ Invested | 17.10% | 17.50% | 11.40% | 21.50% | 17.90% |
| MEANS OF EXPANDING SALES | | | | | |
| ▪ Expanding the area for cultivations (by renting or buying more lands or expand existing cultivations in own lands) | 17.10% | 30.00% | 37.10% | 30.40% | 28.70% |
| ▪ Acquire more techniques through attending trainings | 0.00% | 0.00% | 2.90% | 38.00% | 15.90% |
| ▪ Buy equipment | 7.30% | 7.50% | 22.90% | 21.50% | 15.90% |
| ▪ Expand the livestock raising | 4.90% | 0.00% | 0.00% | 1.30% | 1.50% |
| Total | 41 | 40 | 35 | 79 | 195 |

2.8 SUSTAINABILITY

2.8.1 TECHNICAL SUSTAINABILITY

The technologies introduced by the project are considered practical and appropriate to the site. The approaches and methods are designed to be adapted to beneficiary capacities and financial means. All the approaches and techniques had been tested before being promoted to the beneficiaries. The program creates a system of knowledge transfer to: (1) provide capacity building to service providers/specialists (2) develop and improve manual and technique (3) evaluate the performance and issue certificates to specialists (before becoming FAEC specialists). After the program, FAEC can still recruit new service providers and improve the quality of their services.

2.8.2 FINANCIAL SUSTAINABILITY

FAEC mainly depends on the funds from donor and development agency and membership fee (covering less than 10% of the operational activities) which is not sustainable. The program works to build their financial autonomy by developing a service delivery system to its members (preferential fee) and non-members. Regarding the agricultural cooperatives, the program improves their business capabilities through support on business plan development, financial and internal audit and access to market and finance. Those activities will help the cooperatives to improve its profitability as well as financial autonomy. For farmers, including women and youth, the program will contribute to improve the yields and reduce expenses for input supply to make it more competitive in the market. The program also facilitates market access of the products and strengthens the linkage with collectors/traders. This approach will contribute to the increase of the farmer's income.

After the phase out of the project, the activities that had been started can be sustained. The ACs have already started a business and built their financial capital (Source: KII Master Farmers). Training has been provided to the AC's which enable them to access loans from the financial institutions. But the banks/MFIs do not have confidence in ACs to extend loans without collateral and many ACs on the other hand, do not have collateral to offer to financial institutions. The project also modified the reinforcement of services through the ACs and UACs in recovering service fees and implementing services.

2.8.3 SOCIAL SUSTAINABILITY

The increased participation of women in the program will improve the social and gender equity in decision making processes in rural areas. By giving economic opportunities (agriculture, commercialization, etc.), specifically for young people and women, the social network in rural areas will be strengthened. The program increases rural participation in local governance, improves service delivery, speed-up agribusiness development, overcome scale problems, and exercise influence on policy issues. All of these approaches together contribute to strengthening social cohesion in rural areas.

2.8.4 ENVIRONMENTAL SUSTAINABILITY

As the target member realizes the benefits of agroecology and sustainable agriculture, they will eventually sustain and further develop the AE practices. The farmers started to practice proper management of chemical agriculture waste and the proper way of using the chemical fertilizer as well as composting.

2.8.5 EXIT STRATEGY

FOs will take lead in the local government defending interest of their members and reduce the involvement of the project staff (technical support will be provided directly by FAEC specialist). More importantly, the program design is based on FAEC strategic plan and FAEC is member of Steering Committee allowing them to have more ownership in the program. The function of the project staff is mainly for technical support to the federation management committee, allowing them to improve their management capability, and giving them more responsibility. After the program, they could have more abilities to manage their structure by themselves.

2.8.6 CHANGE IN THE BEHAVIOR TOWARDS SUSTAINABLE AGRICULTURE AND IMPACTS TO PRODUCTION

There is an increased awareness of the farmers on the use of organic inputs due to the interventions of the project (training and farmer to farmer extension, and communication materials). However, this does not automatically translate to actions. Some farmers are worried about the short-term reduction of their yield once they shift to organic farming or do away with pesticides and chemical fertilizers. Some of the farmers prefer to take a gradual adoption of organic fertilizers, and learn the effects through experimentation.

Initially, the target groups have used the value chains promoted by the project (See Section 2.9.1.1). However, these were disrupted by COVID 19 pandemic. Some buyers did not honor their contractual obligations with the farmers (please see Section 2.1).

2.8.7 FACTORS INFLUENCING THE TRANSITION TO AGROECOLOGY PRACTICES

1. **Awareness and Knowledge.** The awareness and knowledge of the farmers on the technology are one of the main actors that influenced the farmers to adopt the AE technology. The household survey indicates 38.5% of the respondents cited the information dissemination influences them to adopt the AE technology (Table 18). These responses are cited to be the most important factors among the ACs that are under the UpScale project. Lack of knowledge is also the reason why the farmers did not adopt the AE technology. This factor was reported by the members of Angkomingpuoy AC (28.6%); Baksey RikReay AC (22.2%); Baphom Meanchey AC (21.7%); Breupras Touerk Stung Cheanit Khang Koeurt AC (20%); Chamroern Phal Reangkesey AC (50%); Chhrolong Ponloeu Meanchey AC (40%); Khum Balang AC (35%); Kompong Preang AC (100%); Mongkul Sala Trav AC (60%); Phum Trorpeang Srour Ngae AC (36%); Ponleu Thmey Kdey Sangkheum Ney Kaksikor AC (71.4%); Samakrethya oung AC (27.3%); Sre Kvav AC (100%); and Udom Soriya AC (40%).
2. **Motivation, Willingness and Interest of Farmer Beneficiaries.** The farmers are motivated to practice the AE technology due to the influence of the extension workers. The farmers are motivated to adopt the practices once they are aware of the technology promoted by the Extension Workers. At the early stage of the project, the farmers will be guided and mentored. The progress will be regularly monitored to prevent backsliding. The coaching and mentoring is particularly crucial in areas where there are no successful farmers using the AE technology. The HH survey indicates that 25.6% of the respondents are influenced to practice the AE technology due to the influence of extension workers. The relevance of this factor is cited by the members of Angkomingpuoy AC (14.3%); Baksey RikReay AC (33.3%); Baphom Meanchey AC (4.3%); Chamroern Phal Reangkesey AC (25%); Chhrolong Ponloeu Meanchey AC (30%); Khum Balang AC (15%); Kompong Preang AC (50%); Mongkul Sala Trav AC (30.0%); Phum Trorpeang Srour Ngae AC (41.9%); Ponleu Thmey Kdey Sangkheum Ney Kaksikor AC (28.6%); Samakrethya oung AC (9.1%); Sre Kvav AC (58.3%); and Udom Soriya AC (30.0%).
3. **Personal Experience of Better Production and Income.** The experience of using the AE will motivate the farmers to further use the AE technology. It is for this reason that the farmers first tested the AE technology on a limited scale and once they observe a positive result, they will implement the technology in their farm. The survey indicates that 14.4% of the ACs considered the personal experience of applying the AE to be an important factor of adopting the AE technology. The members of the following ACs cited this factor to be very relevant in influencing their decision to adopt the AE technology: Angkomingpuoy AC (7.1%); Baksey RikReay AC (14.8%); Breupras Touerk Stung Cheanit Khang Koeurt AC (20.0%); Chhrolong Ponloeu Meanchey AC (10.0%); Khum Balang AC (5.0%); Phum Trorpeang Srour Ngae AC (32.3%); Sre Kvav AC (50.0%); and Udom Soriya AC (30.0%).
4. **Farmers' Perception on the Benefits of AE Technology Used by Other Farmers.** Most of the farmers are averse of new technology for fear of incurring losses. The farmers tend to observe the pioneering farmers who use the technology and follow suit if their use of the technology is successful. In the household survey, there are 12.3% of the respondents who said they defer their adoption based on the experience of other farmers. The failure of technology to produce positive results dampens their interest to adopt it. This factor was cited as relevant to the members of the following ACs: Baksey RikReay AC (25.9%); Baphom Meanchey AC (4.3%); Chamroern Phal Reangkesey AC (12.5%); Khum Balang AC (20.0%); Phum Trorpeang Srour Ngae AC (22.6%); and Udom Soriya AC (40.0%).
5. **Market of AE Products.** The premium market price of AE products attracts the farmers to adopt the AE technology. Without the premium price, the farmers will not be attracted to adopt AE technology considering that the result is realized longer compared to the chemical fertilizers. A link between the producers and the buyers should therefore be strengthened. The survey indicates 11.8% of the

respondents considered the premium prices of the AE products as a motivating factor to adopt the AE technologies. The ACs whose members considered this factor to be important are the following: Angkomingpuoy AC (28.6%); Baksey RikReay AC (29.6%); Chamroeurm Phal Reangkesey AC (12.5%); Chhrolong Ponloeu Meanchey AC (20.0%); Khum Balang AC (10.0%); Kompong Preang AC (50.0%); Phum Trorpeang Srour Ngae AC (12.9%); and Udom Soriya AC (10.0%).

Table 18. Factors influencing the adoption of AE technology among the UpScale beneficiaries

| | Angkomingpuoy AC | Baksey RikReay AC | Baphom Meanchey AC | Breupras Touerk Stung Cheanit Khang Koeurt AC | Chamroeurm Phal Reangkesey AC | Chhrolong Ponloeu Meanchey AC | Khum Balang AC | Kompong Preang AC | Mongkul Sala Trav AC | Phum Trorpeang Srour Ngae AC | Ponleu Thmey Kdey Sangkheum Ney Kaksikor AC | Samakrethya oung AC | Sre Kvav AC | Udom Soriya AC | Total |
|--|------------------|-------------------|--------------------|---|-------------------------------|-------------------------------|----------------|-------------------|----------------------|------------------------------|---|---------------------|-------------|----------------|--------|
| Motivations to practice AE methods | | | | | | | | | | | | | | | |
| Information dissemination | 28.6 % | 22.2 % | 21.7 % | 20.0 % | 50.0 % | 40.0 % | 35.0 % | 100.0 % | 60.0 % | 35.5 % | 71.4 % | 27.3 % | 100.0 % | 40.0 % | 38.5 % |
| Motivation from the extension workers | 14.3 % | 33.3 % | 4.3 % | - | 25.0 % | 30.0 % | 15.0 % | 50.0 % | 30.0 % | 41.9 % | 28.6 % | 9.1 % | 58.3 % | 30.0 % | 25.6 % |
| Personally experienced better production and income | 7.1 % | 14.8 % | - | 20.0 % | - | 10.0 % | 5.0 % | - | - | 32.3 % | - | - | 50.0 % | 30.0 % | 14.4 % |
| Other farmers experienced better production and income | - | 25.9 % | 4.3 % | - | 12.5 % | - | 20.0 % | - | - | 22.6 % | - | - | - | 40.0 % | 12.3 % |
| Premium prices of organic products | 28.6 % | 29.6 % | - | - | 12.5 % | 20.0 % | 10.0 % | 50.0 % | - | 12.9 % | - | - | - | 10.0 % | 11.8 % |
| Success of others | - | 3.7 % | - | - | - | - | - | - | - | 6.5 % | - | - | - | - | 1.5 % |
| Reasons for Not Adopting AE | | | | | | | | | | | | | | | |
| Lack of Knowledge | 28.6 % | 7.4 % | 21.7 % | 20.0 % | 0.0 % | 20.0 % | - | - | 10.0 % | 6.5 % | 14.3 % | 18.2 % | - | 60.0 % | 13.8 % |

| | Angkumpinguoy AC | Baksey RikReay AC | Baphom Meanchey AC | Breupras Touerk Stung Cheanit Khang Koeurt AC | Chamroern Phal Reangksey AC | Chhrolong Ponloeu Meanchey AC | Khum Balang AC | Kompong Preang AC | Mongkul Sala Trav AC | Phum Trorpeang Srir Ngae AC | Ponleu Thmey Kdey Sangkheum Ney Kaksikor AC | Samakrethya oung AC | Sre Kvav AC | Udom Soriya AC | Total |
|--|------------------|-------------------|--------------------|--|--------------------------------|----------------------------------|----------------|-------------------|----------------------|--------------------------------|--|---------------------|-------------|----------------|--------|
| Lack of Labor | 7.1% | 18.5 % | 17.4 % | - | 37.5 % | - | 10.0 % | - | - | 9.7% | 14.3 % | 9.1% | - | - | 10.3 % |
| Waiting Other Farmers to Try the Technology | 14.3 % | 18.5 % | - | 20.0 % | - | - | 5.0% | - | - | 3.2% | - | 9.1% | - | 30.0 % | 7.7% |
| Lack of Materials/Inputs and Water | - | 3.7% | - | 20.0 % | - | 20.0 % | - | - | 20.0 % | - | - | - | - | - | 3.6% |
| Did Not Produce Any Positive Results (Yield and Income) | - | 3.7% | 8.7% | - | - | - | 10.0 % | - | - | - | - | - | - | 10.0 % | 3.1% |
| The Technology/Producing Natural Fertilizers is Time Consuming | - | - | 4.3% | - | - | - | - | - | 10.0 % | - | - | - | - | - | 1.0% |
| N | 14 | 27 | 23 | 10 | 8 | 10 | 20 | 2 | 10 | 31 | 7 | 11 | 12 | 10 | 195 |

6. Efficiency of Small Irrigation Systems Developed. Currently, the beneficiaries reported the management of the irrigation system is not very efficient although these are tolerable (Table 19). The distribution of the water is also intermittent and not reliable. The supply of water could be due to the fact that the irrigation system is for small-scale and not intended for big farms. Those who reported that water management is not very good are mainly commercial producers. For semi-commercial farmers, reported that the water distribution is very efficient and were very satisfied with the irrigation systems.

Table 19. Efficiency of managing the irrigation systems among the farmers with different levels of production

| Efficiency of Management of Irrigation System | For subsistence only: Majority of production is for consumption | Semi-Commercial : Generate income from selling almost 50% of production | Commercial : income depend mostly from sale of farm products | Total |
|---|---|---|--|-------|
| The water management is not good , very inefficient and we have a lot of things to complain on its management | - | 2.6% | 2.1% | 4.6% |
| The water management is not very efficient but tolerable | 14.4% | 26.2% | 11.8% | 52.3% |
| The water management is slightly efficient and may need some improvement | 2.1% | 3.6% | 1.0% | 6.7% |
| The water management is very efficient and we are all very satisfied | 5.1% | 11.3% | 2.6% | 19.0% |
| Not applicable (do not have access to irrigation) | 7.2% | 7.7% | 4.1% | 19.0% |

Source: HH Survey

2.9 CONTRIBUTION TO RESULTS

2.9.1 CONTRIBUTION OF THE PROJECT TO JOINT STRATEGIC FRAMEWORK (JSF)

2.9.1.1 JOINT STRATEGIC GOAL 1: CONTRIBUTE TO RURAL DEVELOPMENT AND TO FOOD, NUTRITIONAL AND ECONOMIC SECURITY OF VULNERABLE RURAL POPULATIONS

- **Increased Production.** The production and productivity of target beneficiaries has improved, particularly on rice seed, paddy rice and other agricultural crops, chicken and other livestock. This is realized through training and capacity building, and support of irrigation and the sustainable agriculture technologies.
- **Competitiveness through Collective Trading.** The project has assisted the farmers to form into SHGs and Agricultural Cooperatives to increase their capacity to trade their products and for a more efficient procurement of agricultural inputs. In order to increase the volume of products sold, FAEC strengthened the ACs, and encouraged the households to join the ACs. The ACs were linked to the buyers to negotiate for a better price. Bulk procurement of agricultural inputs was encouraged to reduce the level of price of the agricultural inputs. The collective form of marketing of products and procurement of agricultural inputs are expected to access a better price to the farmers and also to avail of cheaper agricultural inputs.
- **Access to Financing.** The formation of ACs and SHGs made the distribution of the financial assistance more efficient. The ACs was able to access loans from the financial institutions.
- **Link to Value Chain.** The small scale farmers were able to link to the private companies in the trading of their products. The Federation and Union of ACs enabled them to negotiate for better prices under a marketing contract.
- **Better Governance.** The farmers were able to articulate their concerns and problems to the government agencies concerned through FAEC and FCFD. The federation of ACs or forming unions

empowered the farmers to raise their concerns and issues to the concerned agencies of the government.

2.9.1.2 JOINT STRATEGIC GOAL 5: ENSURE AND IMPROVE ACCESS TO KNOWLEDGE, IMPROVE RESEARCH AND STIMULATE INNOVATION IN ORDER TO CONTRIBUTE TO DEVELOPMENT. The project encouraged research and educational institutions to conduct practical research appropriate to the site. The researches conducted were practical according to the needs of the communities. The project also facilitated the collaboration of academic institutions and NGOs. The NGOs learned the scientific method of conducting research.

2.9.1.3 JOINT STRATEGIC GOAL 6 IMPROVE ENVIRONMENTAL PROTECTION AND CLIMATE CHANGE RESILIENCE. Environmental Awareness. The project contributed to the raising of awareness on the environment through meetings and training. These are embedded in the promotion of the AE. The impact of pesticides has been backed up by research. The project has institutionalized the adoption of climate mitigation measures such as the use of cover crops, proper disposal, and use of organic fertilizers. These aim to mitigate the impacts of agriculture to the environment.

2.9.2 CONTRIBUTION TO GENDER MAINSTREAMING

One of the major implications of the project is strengthening the financial positions or income of women. During the FGD, the women participants reported a 60%-90% increase of their household income (Source: FGD). Figure 5 shows the difference of the change of income of the female and male-headed households. Aside from increasing the income of the households, the project also built the financial and management capability of female-headed households. As shown in Table 20, close to 60% of the female-headed households reported that the project helped them in improving financial management capability.

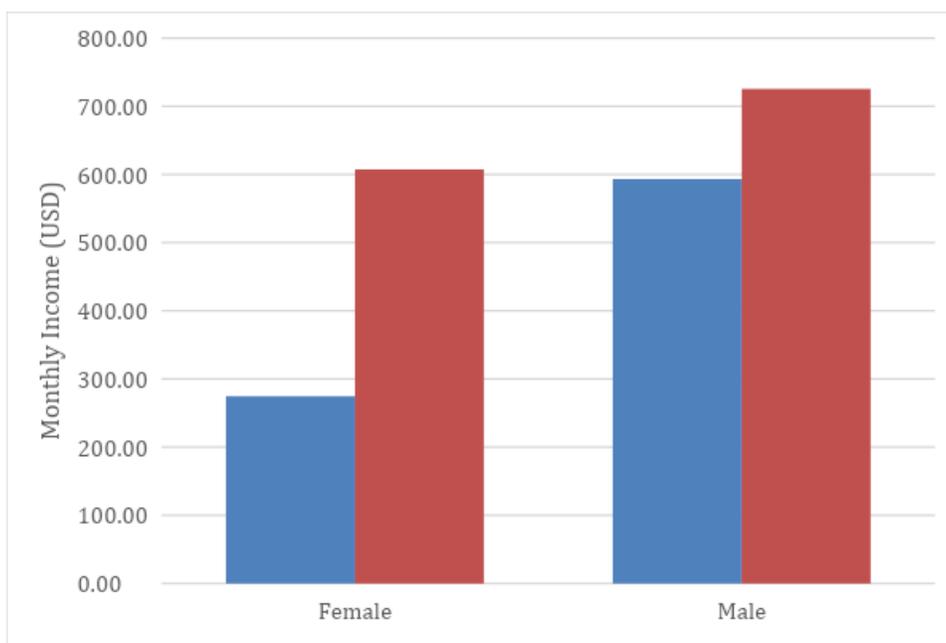


Figure 5. Monthly income of UpScale beneficiaries

Table 20. Improvement of the financial management capability of UpScale Project beneficiaries

| Improvement of Financial Management Capability | Female | Male | TOTAL |
|---|-----------|------------|------------|
| The Project Did Not Help Improve Financial Mgt Capability | 40.5% | 38.0% | 38.5% |
| The Project Help Improve Financial Mgt Capability | 59.5% | 60.8% | 60.5% |
| Not Applicable | - | 1.3% | 1.0% |
| N | 37 | 158 | 195 |

2.10 LESSONS LEARNED²⁰

- 1. The self-reliance of the Agricultural Cooperatives is still not assured due to limited support from the members on its income generating activities.** The project has supported two Farmers’ Organizations federations (FAEC and FCFD) for sustainable seeds supply service to their members. To make the actions sustainable, FAEC and FCFD required ACs to pay a modest service fee (the service fee is only 50 riels per kg.) in order for them to support those ACs in the future. The service fee will assure the benefit of ACs and generate sustainable income after the program. But even if all stakeholders agreed about the service fees at the beginning of the support, some ACs still don’t pay the services. As a result, 55% of the volume of seeds sold by federations was paid without service fee resulting in a loss of income which undermined the services of the ACs. It was then decided to change the fee collection method for the rice seed supply service.
- 2. Organizing a Farmer’s Forum provides an opportunity for the farmers to be heard by concerned government agencies.** Farmer Forum is an event where farmers’ representatives from different provinces meet the government officials to clarify, to raise issues and to seek for support as well as government officials can understand the needs of farmers to elaborate efficient policy or strategy. The Farmers’ Forum had been established by an NGO for many years but discontinued since 2015. In 2018, FAEC is the first farmers’ organization that takes the initiative to organize this event. The forum was attended by high-ranking government officials (National Bank, MOWRAM, MRD and MoC) including the different heads of government projects, NGOs and private sector representatives who seek to develop, invest and support the farmers. The farmers’ representatives became more confident and able to articulate their concerns. Much needs to be improved in the forums, however. After the forums, and should come up with concrete actions to address the concerns of the farmers.
- 3. Learning on-site is more effective for the Farmer-to-Farmer extension system.** Farmer-to-farmer led-extension system has been used by the project since the beginning of the program. During the training, the project staff invited Master Farmers to share their experience, success and difficulties to other farmers. However, inviting Master Fars in the trainings away from their farm affected their productions. Also, some master Farmers are not very articulate in explaining although they are more adept in demonstrating and discussing in the field. But in 2019, most of the Master Farmers training was conducted in the farm, allowing them to show the techniques and the trainees were able to visit and observe their farms. This methodology creates more interactions between visiting farmers and the Master Farmers.

²⁰ Adopted from Lessons Learned Report from Upscale Project

- 4. Agricultural commercialization can only be realized if the enabling organization, such as FAEC, will be supported financially by the beneficiaries of its services (e.g. ACs).** Cambodian small-scale farmers are producing for family consumption and sell their surplus production by themselves in nearby markets. To streamline the commercialized production, UpScale project initially focused on establishing or reinforcing different operators and service providers to prepare the participation of different actors in the value chain. The different sectors include: (1) the individual level, predominantly the farmers; (2) the group or cluster level who are functioning for farmer-to-farmer extension and product collection; (3) AC level, that is performing the functions of collective commercialization and economic transactions; and (4) Union of AC level, that focus on building awareness, helps in negotiating, enable logistics and marketing at a larger scale.

FAEC fulfills enabling functions of forging business linkages and service arrangements including training, agri-inputs, and finance. Among the successful outcomes of the approach are: (1) Improvement of the collective work, building of trust, collaboration, and information sharing, which are traditionally weak in Cambodia; and (2) As producer groups evolve into larger organizations, they get better chances of negotiating favorable conditions. ACs and UACs are taking up value-adding activities by themselves.

While the farmers enjoyed economic advantage due to the strong collaboration, they did not put value and compensate for the services provided by FAEC. FAEC struggled to collect fees from AC and group / cluster. The service fee for the market access of rice-seed is not sufficient to sustain the business. Collaboration suffered due to individualistic behavior, and weak collective spirit of some members. Supporting small-scale farmers to get better revenue from their production requires support services such as determining market opportunities, raising awareness, training, preparing business plans, management, doing simple accounting and other skills.

- 5. The SRP standard is an effective tool to promote agroecology.** The UpScale project established a farmer-to-farmer-led extension system for agroecological practices. The Sustainable Rice Platform (SRP) is a multi-stakeholder partnership to promote resource efficiency and sustainability both on-farm and throughout the rice value chain. BUAC has a business contract for the supply of SRP rice to two Cambodian major buyers, Amru Rice and Agri Bee, who are milling and selling to big multinational companies. The SRP can only be effective if it contributes to the increase in income of the farmers. In this case, SRP standard should help in raising the prices of the products of the farmers. The farmers will be motivated to adopt the agroecology technology once a premium price is paid to rice covered by SRP standard.
- 6. A Farmer-to-Farmer extension provides an efficient way of promoting agroecology.** Eclasio established the Farmer-to-Farmer extension system based on establishing horizontal knowledge transfer using the “Farmer-to-Farmer’ led Extension System”. It includes building capacities of Farmer Specialist Trainers, Master-Farmers, and Model Farms. Capacities are strengthened and responsibilities are distributed to farmer leaders to undertake functions related to collective work, such as leading AE Product Selling Groups, or undertake training. Horizontal collaboration for joint activities, such as collective purchase and sale, is hampered by the individualistic behavior, and weak

collective spirits. In their study, Josse *et al* (2018) reported that 44% of farmers expressed that the best way to learn technical innovations is through Farmers to Farmers approach.²¹

7. **FAEC and FCFD helps in ensuring that the farmers use good quality rice seeds in the production system of farmers.** The use of good quality seeds helps in ensuring a better production of the farmers. The use of “Foundation-Seeds” from CARDI and the reproduction of these seeds and sold as Certified-Seeds is crucial for improving rice paddy rice production. Some private dealers collect paddy rice and pass it on as rice-seeds to farmers at a cheaper price than FAEC-certified rice seeds. In the end, the farmers incurred lower yields. Buying the rice seeds from reliable sources such as FAEC and FCFD is important.
8. **Predominance of “Free Rider” mentality among the Agricultural Cooperatives.** FAEC and FCFD are working for the ACs to get access to market and financial services. To sustain the operation of FAEC and FCFD, a modest fee is required to enable FAEC and FCFD to sustain its operation and continue delivering their services to the ACs and link the ACs to the market through various channels (e.g. Cambodian Rice Federation, Facebook/website of FAEC, and direct meeting and negotiation with private companies, etc.). The ACs, however, are unwilling to provide the required fees. FAEC/FCFD is reconsidering the reduction of geographic coverage.

While there are ACs who are convinced to the benefits of a collective action by becoming a member of FAEC, they started to lose interest when the officers of FAEC committed fraud. They started withdrawing their membership. The integrity of an organization that support the ACs is of paramount importance for the concept to succeed.

9. **Farmer-to-Farmer extension platform provides an effective tool in sharing knowledge among farmers.** In the UpScale program, the transfer of knowledge and technology to the farmers was carried out effectively through the Farmer-to-Farmer Platform. The transfer of technology is carried out by Farmer Specialist Trainers and Master Farmers. The model was proven to be effective since the farmers lose their inhibition to learn from their fellow farmers who are considered to be their peers. The experience of the project indicates that on-site learning is more effective than lecture training. Interactions between farmers are considered as the most efficient way to transfer technical innovations, esp. home and at markets.
10. **Factors Crucial for Achieving the Results or inhibits the achievement of results.** The adoption of agroecology depends on the knowledge of farmers on the benefits of agroecology. They readily adopt the AE technologies once they observe the other farmers who successfully adopted these technologies. Effective technology transfer is determined by the effectiveness and skills of the Farmer Extension Workers (Master Farmers and Farmer Specialists). Access to irrigation also contributes to the increasing production of the farmers. The premium price offered to the AE products encourages the adoption of technologies.

While production will be crucial in increasing the income of the farmers, access to markets also contributed to the increase in income. FAEC and FCFD then played a very important role in organizing the different agricultural cooperatives to leverage the market price of the products of the farmers.

²¹ Josse, D., Peeters, A.; Neang, M., Ek, S.; Seang, S.; Ol, R.; Sok, S., Deleener, P. 2018. *Dissemination of Sustainable Technical Innovations among Smallholder Farmers in the South of Kampong Thom, Cambodia. Siem Reap: 4th AFSA International Conference on Food Safety and Food Security, 10th–12th August 2018.*

Currently, the operation of agricultural cooperatives is managed by aging committee members who have limited education. Inviting the younger members of the community, who have higher education to participate in managing the ACs. However, some of the youths prefer to work in establishments that offer higher pays.

The ACs understanding on the role and services of FAEC and FCFD is crucial in sustaining the delivery of services of FAEC and FCFD. There are still some ACs not willing to pay the services of FAEC and FCFD. There is a need for the ACs to understand the benefits of collective production and selling.

2.11 SWOT ANALYSIS FOR UPSCALE PROJECT

The strengths, weaknesses, opportunities and threats of the project are analyzed with the purview of developing the second phase of the project. The factors (SWOT) were assessed in terms of its relevance: 1= Slightly Relevant; 2= Moderately Relevant; 3= Relevant; and 4= Very Relevant. The following strengths, weaknesses, opportunities and threats are summarized as follows:

| STRENGTHS: | OPPORTUNITIES: |
|---|---|
| <p>Uni4Coop Program and Partnership</p> <ul style="list-style-type: none"> ▪ Participation of different partners that bring in different skills to assist the farmers and the ACs (4: Very Relevant) <p>ACs, SHGs and Farmer Producer Group</p> <ul style="list-style-type: none"> ▪ The ACs are already organized into federations or unions (3: Relevant) ▪ Strong cohesion among the members of ACs (2: Moderately Relevant) ▪ The ACs are now recruiting the youths to be part of their set-up (1: Slightly Relevant) <p>Farmer-to-Farmer Extension</p> <ul style="list-style-type: none"> ▪ Highly educated Farmer Trainers (some are Teachers) (4: Very Relevant) ▪ A Farmer-to-Farmer learning system is in place (4: Very Relevant) | <p>Uni4Coop Program and Partnership</p> <ul style="list-style-type: none"> ▪ Local partners are dependent on the external funding (4: Very Relevant) ▪ There are Organizations and Research Institutions who have high specialization in their own fields (3: Relevant) ▪ Support for more farmer-based research through Community Participatory Action Research (3: Relevant) ▪ Access to R&Ds due to strong collaboration with research institutions (3: Relevant) ▪ Presence of network of/platform (e.g. ALiSEA) for the exchange of knowledge (2: Moderately Relevant) ▪ Availability of researches and publications (1: Slightly Relevant) <p>Business Development</p> <ul style="list-style-type: none"> ▪ Opportunities for the digital marketing (4: Very Relevant) ▪ NGOs providing technical assistance to the ACs to engage in business (3: Relevant) ▪ Linkages with the private sector companies for the trading of farm products (4: Very Relevant) ▪ Standards (SRP and PGS) are operational (4: Very Relevant) ▪ Linkage with the private sector (4: Very Relevant) ▪ Market access (4: Very Relevant) ▪ Access to processing technologies (4: Very Relevant) |

| | |
|--|---|
| | <p>ACs, SHGs and Farmer Producer Group</p> <ul style="list-style-type: none"> Government support for the formation of ACs (4: Very Relevant) <p>Environment and Natural Resources</p> <ul style="list-style-type: none"> The forest and fishery resources providing safety nets to the farmers during periods of economic shock (4: Very Relevant) |
| <p>WEAKNESSES:</p> <p>Uni4Coop Program and Partnership</p> <ul style="list-style-type: none"> Difference in approach to implement the same output (e.g. Agro-Ecology and Sustainable Agriculture) (1: Slightly Relevant) <p>Farmer-to-Farmer Extension:</p> <ul style="list-style-type: none"> Many Service Providers are still new and lack the experience and knowledge on AE/SA (4: Very Relevant) Limited information on the list of Service providers that can be tapped for Farmer-to-Farmer Extension (2: Moderately Relevant) <p>ACs, SHGs and Farmer Producer Group</p> <ul style="list-style-type: none"> Many ACs still do not engage in business or trading (3: Relevant) Ageing AC committee members and lack of interest of youths to take positions in the agricultural cooperatives (2: Moderately Relevant) Many AC members lack the understanding of the beneficiaries of cooperative membership (1: Slightly Relevant) Loss of trust and decline of FAEC membership due to fraud committed by some Staff (4: Very Relevant) <p>AE/SA Technology Adoption</p> <ul style="list-style-type: none"> Lack of knowledge on AE/SA technologies (4: Very Relevant) | <p>THREATS:</p> <p>Uni4Coop Program and Partnership</p> <ul style="list-style-type: none"> Complexity of the collaboration framework of the LC, Eclasio and its members - Complexity of dealing with several actors and putting their acts together (4: Very Relevant) Some of the service providers (Farmer Trainers) are still weak and need further enhancement of their capacity (2: Moderately Relevant) <p>ACs, SHGs and Farmer Producer Group</p> <ul style="list-style-type: none"> Some companies sell directly to the members of the ACs (4: Very Relevant) Costly process of transformation of SHGs to ACs (3: Relevant) High staff turnover of Partners NGOs (2: Moderately Relevant) <p>EA/SA Technology Adoption</p> <ul style="list-style-type: none"> Some farmers are not concerned between ordinary paddy rice from quality rice seeds as planting materials. Some companies are also selling ordinary paddy rice as seeds at a lower price (4: Very Relevant) No access to irrigation water to support crop production (4: Very Relevant) Some farmers are still reluctant to fully adopt the AE/SA technology since they are still not fully convinced on the benefits of AE/SA technology (4: Very Relevant) There are still limited documentation showing the benefits of AE/SA technologies (2: Moderately Relevant) <p>Business Development</p> <ul style="list-style-type: none"> Funding are becoming difficult to sustain the operation of the ACs and the Local Partners (4: Very Relevant) Some companies sell low quality and cheap seeds to the members (4: Very Relevant) Some companies sell directly to the AC |

| | |
|--|---|
| | <p>members instead to the ACs (3: Relevant)</p> <ul style="list-style-type: none"> ▪ Lack of financial programs designed for the ACs (3: Relevant) ▪ Some AC members sell their products directly to the companies instead to the ACs (3: Relevant) ▪ Complexity of applying loans for the ACs (2: Moderately Relevant) ▪ Complicated process in applying loans in the rural banks due to bureaucratic process (2: Moderately Relevant) <p>Environment and Natural Resources</p> <ul style="list-style-type: none"> ▪ Contamination of the water table with pesticides which may affect the quality of organically grown products (4: Very Relevant) ▪ Use of banned pesticides (DDT) by the famers (3: Relevant) |
|--|---|

2.12 RECOMMENDATIONS

Several recommendations are recommended to strengthen the implementation of the project based on the foregoing SWOT analysis. The following recommendations are grouped into the following thematic areas: (1) ACs, SHGs and Producer Groups Strengthening; (2) Business Development; and (3) Environment and Natural Resources Development and Management.

A. ACs, SHGs and Producer Groups Strengthening

1. Train the young/educated workers of ACs (committee members and youths) on computer literacy.

The AC’s are recruiting the youths to be involved in running the business. As the AC’s operations grow, the recordings become more sophisticated. There is a need for the ACs to avail of basic equipment such as computers to efficiently handle the record keeping, documentations, invoicing and preparing reports. To some extent, the ACs will need to get hold of some accounting software. The educated staff of the ACs will be provided training on the Microsoft Office (Word Processors and Excel for computation) and use of accounting software like QuickBooks or its equivalent.

2. Organize AC membership seminars in communities.

The assessment revealed the benefits and important role of forming an agricultural cooperative to be competitive in engaging into agricultural business. Some members of the ACs still did not internalize the purpose of collective actions (i.e. collective selling and collective procurement of farm inputs). The project should therefore focus on expanding the membership by explaining more the advantages of joining the agricultural cooperatives. The staff from the Department of Agricultural Cooperative Promotion (DACP) of MAFF may be invited to explain to the prospective members on the advantages of joining the Agricultural Cooperative. The seminars will explain to the prospective members the obligations and role of the AC members to the AC. On the other hand, FAEC and FCFD will hold a seminar on the need to be a member of FAEC/FCFD and the responsibilities of the ACs to pay the agreed fees. These fees will be needed to sustain the operation of FAEC/FCFD and will be able to deliver the services to its AC members.

3. Implementation of Volunteer Programs. FAEC will launch a volunteering program to work with the ACs. The volunteering program is aimed at providing support to the ACs in running its program (e.g. office works, information dissemination, processing of agricultural products, preparing marketing programs online through Facebook or other social media, etc.). The volunteering program will provide benefits to the youths, particularly to the fresh graduates of agriculture, to gain experience and make them prepared before their employment.

B. Business Development

1. Conduct financial literacy training to the farmers and members of the ACs/SHGs. Despite the benefits provided by the project in improving the income of the members of the ACs, there are still very few who made significant investments to expand their farming and livelihoods. Even the ACs are reluctant to set aside a portion of their income to support FAEC to sustain the latter's operation. Financial literacy training is important to encourage the beneficiaries to set aside part of their income and invest in business or in the agricultural cooperatives. By investing in the ACs, the latter can expand its operation and increase the business operations in the community.

2. Training on food processing (meat, fish and vegetables). Currently, there are very few industries operating in the villages. Most of the agricultural products are marketed in raw form with limited value adding. The farmers will be trained on the production of processed or semi-processed products. The producers can either be processing meat, fish and vegetables.

3. Assist the AC/Producer Groups putting up of slaughterhouse, slaughterhouse management and meat quality inspection. The farmers are marketing live chicken collectively. The marketing of chicken under this method is quite risky since the chickens that are brought in one place may be sick and will increase the chances of infecting other chickens. This risk can be addressed by marketing dressed chicken. The community will be trained therefore on the management of the slaughterhouse, particularly on sanitary handling of the meat products and disposal of wastes. In addition, the members should also be trained on quality meat inspection. The slaughterhouse may be installed with a cold storage facility to ensure the quality of meat.

C. Environment and Natural Resources Development and Management

1. Establish Community Fish Refuge Areas and Development of Communal Forest. The products from the forest and from the natural bodies of water are known to be safety nets to the poor during periods of economic stress. This has been proven during the pandemic. The beneficiaries of UpScale revealed that during the pandemic, they were able to survive by hunting fish in the rivers and ponds. Some collected NTFPs to supplement their income or as a source of food. To improve the provisioning services from the natural resources, the project needs to conserve the water bodies as fish refuge, and develop and conserve the patches of forests to enhance their capability to produce food plants.

D. Project Operation and Management

It is recommended that for the similar projects, more allocation should be put to direct interventions, like interventions on fertilizers, irrigation, production value chain and institutional strengthening. These activities received very small support. It is suggested that for the succeeding project, more budget should be allocated to operation and the budget for management and personnel will be reduced appropriately.

CHAPTER 3. THE FOOD AND ECONOMIC SECURITY (FES) PROJECT

The programme aims to improve the living conditions of vulnerable rural populations in a sustainable way by focusing its interventions on two main components: Food and Economic Security (FES) and Non-Communicable Diseases (NCDs). The FES program created structures that can help farmers to develop their activities and find both technical and financial support. FES aims to set up self-help groups including health beneficiaries (families with MH patients & people with disabilities) to create a space for exchanges, solidarity and help members to develop small business activities and setting up of ACs. The key approach of the project involves building of capacity, technical knowledge and awareness. The Non-Communicable Diseases (NCDs) programme of LC in Cambodia mainly addresses the problem of mental health in Cambodia that will contribute to quality of health and to better access for all vulnerable patients (Source: Uni4Coop Common Programme 2017-2021 Cambodia).

The farmer groups are initially mobilized into Self-Help Groups and then they are transformed to Agriculture Cooperatives certified by the Provincial Department of Agriculture, Forestry and Fisheries (PDAFF). The project provided support through its local partners on the following four components: (1) enhancing capacity and development of communities, small holder farmers and building functional organizations (Agriculture Cooperatives); (2) Improving access on food quality and safety by promoting and enhancing agro-ecological (AE) practices, enhance the quality & safety of seeds & crop production, promoting consumer awareness on AE products and climate change impacts and adaptation strategies; (3) Promotion of livestock farming; (4) Linking local farmers, suppliers and markets. The project has started implementation since 2017 with three local partners including Mlub Baitong (MB), FAEC and Ecoland. Mlub Baitong (MB) was involved in the project in 2018 continuing the work of MODE. MB was responsible for organizing beneficiaries into Self-Help groups and strengthening their technical and business skills through capacity building, training and coaching on various technical agricultural practices and business management. It is also responsible for providing training and mentoring to the target beneficiaries, supplying physical inputs, and financial support. MB employed four field staff to work in the target areas of the project in Kampong Thom province. The roles of the field staff were to create and strengthen Self-Help Groups (SHGs), model farmers and farmers through sustainable agriculture (SA) practices (please see Box 5 of the concept), select and coach other potential small-scale business owners in income generating activities (IGA).

Box 5. Concept of Sustainable Agriculture²²

Sustainable agriculture is that form of agriculture which attempts to produce sufficient food to meet the needs of the present day population without exhausting soil fertility and irreversibly damaging the environment. Sustainable farming systems are those that are least toxic and least energy intensive and yet maintain productivity and profitability i.e. low input agriculture or organic farming.²³

Some features of Sustainable Agriculture include the following:²⁴

- Puts the emphasis on methods and processes that improve soil productivity while minimizing harmful effects on the climate, soil, water, air, biodiversity and human health.

²² <https://www.nios.ac.in/media/documents/333courseE/21.pdf>

²³ <https://www.nios.ac.in/media/documents/333courseE/21.pdf>

²⁴ <https://www.giz.de/en/downloads/giz2015-en-what-is-sustain-agric.pdf>

- Aims to minimize the use of inputs from nonrenewable sources and petroleum-based products and replace them with those from renewable resources.
- Focuses on local people and their needs, knowledge, skills, socio-cultural values and institutional structures.
- Ensures that the basic nutritional requirements of current and future generations are met in both quantity and quality terms.
- Provides long-term employment, an adequate income and dignified and equal working and living conditions for everybody involved in agricultural value chains.
- Reduces the agricultural sector’s vulnerability to adverse natural conditions (e.g. climate), socioeconomic factors (e.g. strong price fluctuations) and other risks.
- Fosters sustainable rural institutions that encourage the participation of all shareholders and promote the reconciliation of interests.

Demographic and Geographical Information of Respondents. All the respondents who participated in this study were beneficiaries of the FES project. The beneficiaries of FES are within the 30-50 year-old categories (Table 21). Most of them (61.5%) studied only at the primary level. The households are mostly headed by male members of the family. The respondents are self-employed (82.1%) and belong to the non-poor (87.2%). The household size is fairly small (4-5 persons).

Table 21. Socio-demographic profile of FES beneficiaries

| Parameters | Respondents |
|------------------------|-------------|
| AGE | 100.00% |
| • <30 yo | • 5.09% |
| • 30-40 yo | • 38.46% |
| • 41-50 yo | • 38.46% |
| • 51-60 yo | • 15.38% |
| • >60 yo | • 2.61% |
| EDUCATION | 100.00% |
| • Primary | • 61.50% |
| • Secondary | • 23.10% |
| • High School | • 7.70% |
| • None | • 7.70% |
| SEX OF HH HEAD | 100.00% |
| • Female | • 12.80% |
| • Male | • 87.20% |
| OCCUPATION | 100.00% |
| • Self-employed | • 82.02% |
| • Unpaid family worker | • 10.29% |
| • Paid employee | • 7.69% |
| ID POOR | 100.00% |
| • Non-Poor | • 87.11% |
| • ID Poor 2 | • 10.29% |
| • ID Poor 1 | • 2.60% |
| HH SIZE RANGE | 100.00% |
| • <4 | • 30.80% |
| • 4-5 | • 48.70% |

| Parameters | Respondents |
|------------|-------------|
| • >5 | • 20.50% |
| n | 39 |

Impact of COVID 19 Pandemic. COVID 19 pandemics have various effects on the FES beneficiaries. About 64.1% of the FES beneficiaries reported that the learning of their children was left behind during the pandemic. The other impacts of the pandemic that were reported by the FES beneficiaries include decline of their income (64.1%), the respondents became bored and worried (82.1%), and their social functions such as attending funerals and weddings were restricted (76.9%). There are very few FES beneficiaries who reported that COVID 19 affected them in terms of being overburdened by HH tasks (12.8%), scarcity of food (2.6%); sickly family members (15.4%); decreasing HH savings (12.8%), and increased expenses (28.2%). The impact of COVID 19 pandemic has varying effects to the livelihoods of the FES beneficiaries, although 66.7% of them reported that their livelihoods are not affected. The impact of the pandemic to the livelihoods of the beneficiaries include losing their jobs (17.9%); they were not able to find work (15.4%); restricted to attend to their farmers (5.1%); declining prices of agriculture products (2.6%) and unable to transact business (2.6%) (Table 22). In the last months of 2020 until the end of 2021, the COVID-19 pandemic obstructed the project staff from providing training activities to the beneficiaries since it was compulsory for everyone to keep distance and avoid gathering. This had a negative impact on the number of training received by the beneficiaries. One of the reasons is that many farmers struggled to find suitable markets to sell their produce since there were fewer traders traveling around the village to collect vegetables amid the COVID 19 pandemic. Furthermore, it was difficult for farmers to collectively sell vegetables directly to vendors at communal or district markets as travels were periodically restricted and the supplies were unstable.²⁵

Table 22. Impact of COVID 19 to the beneficiaries of FES project

| Effect of COVID 19 | Respondents |
|--|-------------|
| Education of Children | |
| ▪ Learning of my children were left behind | 64.1% |
| ▪ Learning of children has declined | 61.5% |
| ▪ Not affected/impacted | 28.2% |
| Family Relations | |
| ▪ Burdened by HH tasks | 12.8% |
| ▪ Not affected/impacted | 87.2% |
| Food and Hunger | |
| ▪ Food becomes scarce | 2.6% |
| ▪ Not affected/impacted | 97.4% |
| Health | |
| ▪ Family members becomes sickly | 15.4% |
| ▪ Not affected/impacted | 84.6% |
| HH Savings | |
| ▪ HH savings declined | 12.8% |
| ▪ No changes | 87.2% |
| Livelihoods | |

²⁵ LC Impact Assessment Report

| Effect of COVID 19 | Respondents |
|--|-------------|
| ▪ Lost my job | 17.9% |
| ▪ Unable to find work | 15.4% |
| ▪ Unable to attend to my farm | 5.1% |
| ▪ Decline of the price of agriculture products | 2.6% |
| ▪ Unable to transact business | 2.6% |
| ▪ Not affected/impacted | 66.7% |
| Monthly HH Expenses | |
| ▪ Expenses increased | 28.2% |
| ▪ Expenses decreased | 2.6% |
| ▪ No changes | 69.2% |
| Monthly HH Income | |
| ▪ HH income declined | 64.1% |
| ▪ No changes | 35.9% |
| Psychological | |
| ▪ Became bored and worried | 82.1% |
| ▪ Becomes depressed and helpless | 28.2% |
| ▪ Becomes lonely | 7.7% |
| ▪ Not affected/impacted | 17.9% |
| Social and Religious | |
| ▪ Difficulty to attend social function (wedding and funeral) | 76.9% |
| ▪ Not affected/impacted | 17.9% |
| ▪ Unable to meet friends | 76.9% |
| ▪ Unable to pray to the Pagoda | 53.8% |
| N | 39 |

To cope up with the pandemic, the farmers resorted to increasing their crop, livestock or fish production (25.6%); resorted to house-to-house selling of products; find for work and save foods (10.3% each); expand the business (7.7%); and borrow loans from SHGs (2.6%) (Table 23).

Table 23. Coping mechanism of the FES beneficiaries

| Coping with COVID | Respondents |
|--|-------------|
| Increase the plantings or livestock or fish production | 25.6% |
| Sell the products house to house | 17.9% |
| Find for more work | 10.3% |
| Save the foods | 10.3% |
| Expand business | 7.7% |
| Loan from community group (SHGs or SGs) | 2.6% |
| None | 20.5% |
| Not impacted at all | 33.3% |
| N | 39 |

3.1 SYNERGIES AND COMPLEMENTARITIES

The FES project has three synergies: (1) Synergies with Belgian ACNGs and Eclasio; (2) Synergies with universities and institutes; and (3) synergies between health and the food and economic security components. LC takes a role as the JSF lead in Cambodia and collaborates with GRET, ITM, ALiSEA, UCLouvain and partners such as with FAEC, RUA-ECOLAND Research Center and MB. It organizes JSF coordination meetings among JSF members and Strategic Dialogue meetings every year. The last Joint Annual Review meeting was organized on 1st December 2021, with the participation of Belgian actors including Louvain Cooperation, Eclasio, VVOB, ACV-CSC, Oxfam, WWF, APOPO, Humanity & Inclusion, and WSM.²⁶

3.2 THE PROJECT DESIGN

LC's SO aims to create structures (Self-Help Groups (SHGs) including the participating populations from LC's health programme) that can help farmers to develop their activities and find both technical and financial support to develop small businesses and covers the Kampong Thom and Kampong Cham provinces. LC supports the formation of SHGs to amalgamate capital for small business initiatives and support IGA grants to individual entrepreneurs to promote good examples to others. Those SHGs that are organizationally mature were assisted by LC to become Agricultural Cooperatives. One of the carriers of knowledge will be the Model Farmers who were trained in technology transfer under a Farmer-to-Farmer Extension (Source: KII LC).

3.3 RELEVANCE

The Food and Economic Security (FES) program of LC in Cambodia aims to create structures that can help farmers to develop their activities and find both technical and financial support. FES helps the ACs in accessing credits by linking the ACs with the micro-finance and banking organizations, improving the skills of the farmers in managing their capital and paying their debts and developing business plans. The agricultural cooperatives aim to spur local economic development by increasing the business and trading of the farmers' products. Increasing the production of the farmers through the use of sustainable agriculture practices is very relevant to the government's thrust of reducing the impact of agriculture by reducing the use of pesticides and chemical fertilizers. The key approach of the project involves the building of capacity, technical knowledge and awareness. Among the activities conducted to achieve this SO are the following:²⁷

- Strengthen local partners and other community based organizations (cooperatives, informal groups) institutional capacities in terms of technical, management, governance (improving among other the involvement of women and young), advocacy and business skills;
- Support to individual or collective initiatives (cooperatives, groups, local partners) to develop business and, or, income generating activities by bringing coaching and facilitating access to necessary means (agricultural inputs, credit/grant, water access, etc.);
- Strengthen small-scale farmers (men, women and young) skills and capacities for transition to sustainable agriculture (agroecology, organic, etc.);
- Develop a network of farmer leaders (model, master, specialize) within community or FO;

²⁶ *Extracted from the Internal Report of LC*

²⁷ *Uni4Coop Common Programme 2017-2021 Cambodia*

- Facilitate market access for individual small-scale farmers and their organizations through the identification of market opportunities and, or, value chain development using among others digital tools;
- Support the emergence of new FO based on existing informal groups or associations;
- Implement awareness raising activities toward beneficiaries and their organizations on environmental and climate change issues;
- Conduct studies/researches to understand the constraints faced by small scale farmers and their organizations including gender and environmental issues, and develop strategies and models to support small scale farming adapted to Cambodian conditions using among other digital technologies;
- Capitalize and disseminate the results of research/studies among small-scale farmers, partners and other stakeholder (Belgian and international NGO, local and Belgian universities, authorities, etc.) using among other digital technologies (website, social networks)

3.4 EFFECTIVENESS

3.4.1 ACHIEVEMENT OF THE SO2 INDICATORS

Most of the targets have been achieved by the project. The SA technologies have improved the yield and income of the farmers. Majority indicated have revenues higher than the costs. However, there are few who invested their surplus to productive endeavors (e.g. expansion of the business, buying equipment, buying lands, etc.) and there are considerable numbers of farmers who used their surplus in buying basic necessities (foods, medicines, etc.). This SO has the following indicators:

1. Households having enough food to eat all year around
2. Increase of women beneficiaries' income above the average level
3. Number of new registered Agricultural Cooperatives (ACs) in the target areas

The achievement of the different indicators is shown in Table 24.

Table 24. Achievement of the SO2 indicators

| | Target | Baseline | Endline |
|--|--------|----------|---|
| Households having enough food to eat all year around | 463 | | 97.4% ²⁸ |
| Increase of women beneficiaries' income above the average level | +20% | 0 | <ul style="list-style-type: none"> ▪ Average Change of Female Income: 10.2% ▪ Farm: 51.7% ▪ Non-Farm: 2.3% |
| Number of new registered Agricultural Cooperatives (ACs) in the target areas | 5 | 0 | 5 (2 new) |

Source: HH Survey

3.4.1.1 HOUSEHOLDS HAVING ENOUGH FOOD TO EAT ALL YEAR AROUND. Household food access is defined as the ability to acquire sufficient quality and quantity of food to meet all household members' nutritional requirements for productive lives (Swindale & Bilinsky, 2006). Within November 2020-November 2021, it was estimated that 33% of the beneficiaries experienced food shortages. Food shortages refer mostly to

²⁸ Source: HH Survey

the lack of paddy and rice to consume all year round. The COVID 19 outbreak was reported by many respondents to be the major driver of food shortage by impeding the flow of agricultural inputs, prevented traveling and reduced the income from both on-farm and off-farm activities, reducing the access to decent and adequate diets which consisting of at least 3 nutritious meals per day. Aside from COVID 19 pandemic, there are some other major issues that lead to food shortages like natural disasters. Many respondents who experienced food shortages reported that their crops were damaged during the rainy season, which reduced their income significantly, leaving them vulnerable to food shortages in a few months. The internal monitoring made by the project indicates 67% of respondents, who did not experience food constraints.²⁹ The endline assessment however indicates a higher number of respondents are having enough food to eat (97.4%)(Figure 6). The endline assessment is based on the criteria:

- Lack of Food: [1] My food and economic security is very uncertain; or [2] My food and economic security is slightly uncertain; and
- Have Enough Food: [3] My family is slightly concerned of the food availability and livelihoods; or [4] My family have no problem in terms of the food and I have sustainable livelihoods;

The number of FES beneficiaries who reported that they lack food to eat has decreased from 30.8% in the baseline to 2.6% when the endline assessment was conducted. Using the scale of 1-10 (1 being a scale when the household experiences a severe shortage of food), the respondents revealed that they experienced food shortages from March to May, with April being the most severe (Figure 7). It can be noticed that this period coincides with the dry season. Yet, the scale that was provided by the respondents indicate that the severity of the food shortage is very slight (i.e. the scale is higher than 9). This result indicates that food shortage is not a serious problem in the FES site.

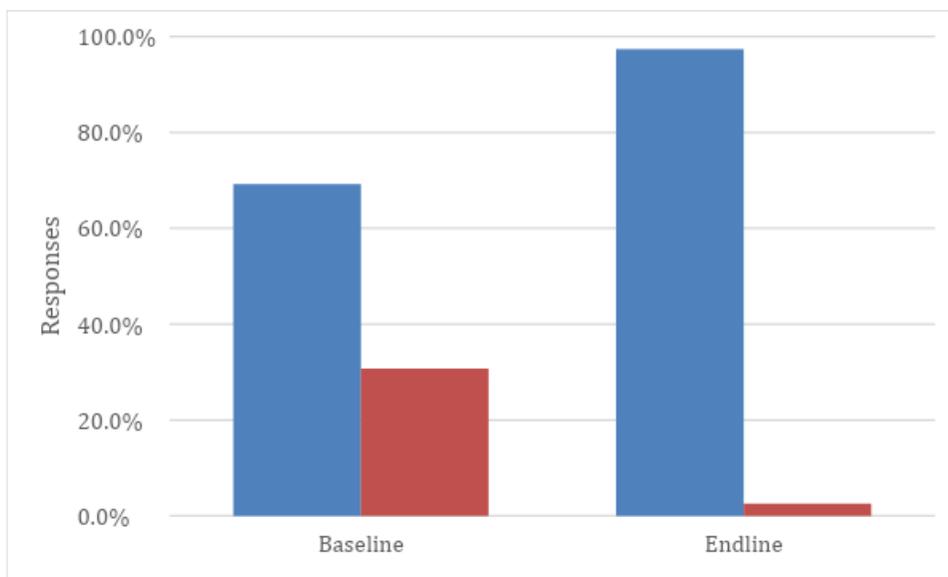


Figure 6. Status of food availability of the FES beneficiaries

²⁹ LC Impact Assessment Report

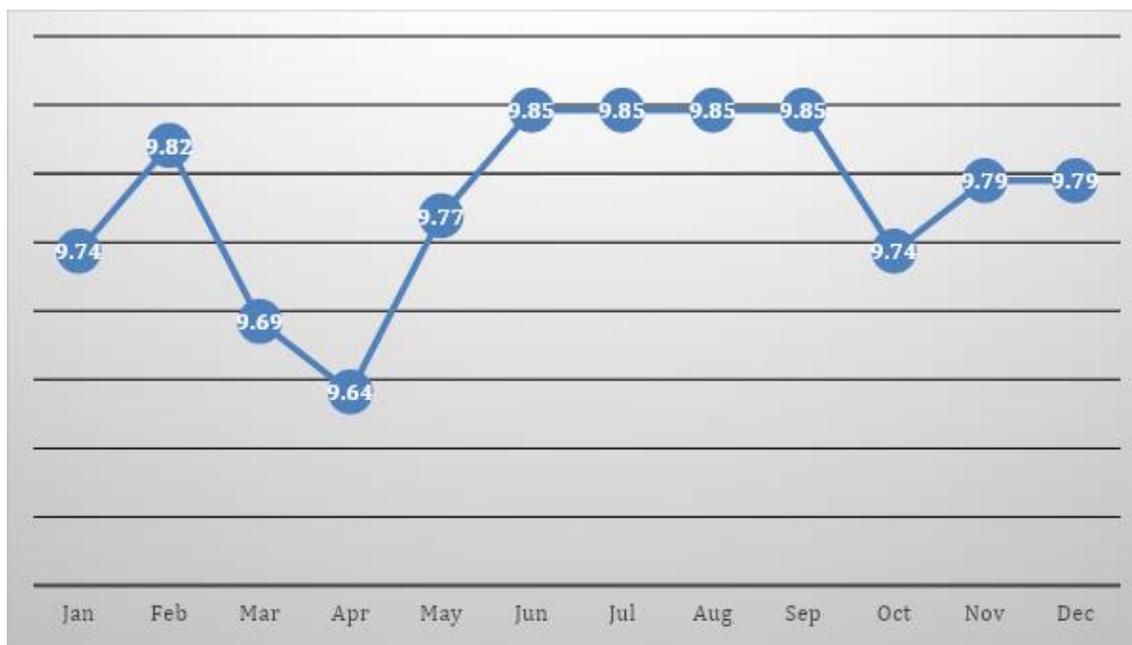


Figure 7. Months when Food is available or scarce using a scale of 1 (very scarce or have a severe shortage) to 10 (when there is enough Food)

The farmers who did not experience food constraints were farmers having wider production areas (more than 2 ha), which have better access to labor and production facilities (such as machineries and irrigation sources). With these additional advantages, they could produce more rice and other crops to generate incomes to support their decent diets even during COVID 19 outbreak or natural disaster. The impact assessment conducted by LC showed that 96.05% of the farmers who did not experience food shortage are producing rice. The farmers who faced food shortage did not plant rice because they have small lands (average 0.77 ha/family) enough for their house. The impact assessment of LC revealed that the beneficiaries of FES adopted coping strategies to mitigate food shortages.

Twenty-one percent of the respondents with food security issues used their personal savings to buy food, and 18 % reached to their self-help group for financial support through quick money loans. Another major coping measure was asking relatives or other villagers to lend them some money for food. Just a very small percentage of beneficiaries took loans from creditors, collected non-timber forest products (NTFP) such as honey or firewood etc., or consumed congee as mitigation strategies. In the study areas, congee is a popular breakfast. It is generally served with salted fish or meat. However, for households with limited access to rice, consuming congee becomes an effective coping strategy against food shortage since it consumes less rice in the cooking process, and can serve a larger number of people.³⁰

3.4.1.2 INCREASE OF WOMEN BENEFICIARIES' INCOME ABOVE THE AVERAGE LEVEL. Continuous uplifting of the farmers from poverty is an important consideration of the project. This is done through capacity building, financial support and equipment supply; the project also supported the development and expansion of businesses run by women in the target communities.³¹ For this indicator, the female-headed households

³⁰ LC Impact Assessment Report

³¹ LC. (Undated). Impact Assessment of Food and Economics Security (FES) Project. Louvain Cooperation: Phnom Penh, Cambodia.

have improved their income by \$12.10 compared to the baseline or a 10.2% average increase of the income from farm and non-farm income. This is lower compared to the target of 20% increase of household income. However, for farm income, the female-headed households posted a 51.07% increase in income. There is a very low increase from non-farm income (2.3%) (Table 25).

Table 25. Increase in farm income

| Livelihood Category | Baseline | Endline | Change (USD) | % Change |
|---------------------|---------------|---------------|--------------|--------------|
| Female | 119.05 | 131.15 | 12.10 | 10.2% |
| Farm | 38.10 | 57.80 | 19.69 | 51.7% |
| Non-Farm | 200.00 | 204.50 | 4.50 | 2.3% |
| Male | 237.53 | 309.64 | 72.11 | 30.4% |
| Farm | 201.84 | 290.00 | 88.16 | 43.7% |
| Non-Farm | 273.22 | 329.28 | 56.06 | 20.5% |
| Off-Farm | 112.60 | 150.35 | 37.75 | 33.5% |

Source: HH survey

Through the project implementation over a period of 5 years from 2017 to 2021, women beneficiaries received numerous support including capacity building, financial funds and farming input from the FES project. The support contributed significantly to increase the monthly income of the women beneficiaries.³²

3.4.1.3 NUMBER OF NEW REGISTERED AGRICULTURAL COOPERATIVES (ACs) IN THE TARGET AREAS. This target indicator has been achieved. The target is to have 5 new registered ACs and there are 5 ACs in Kampong Thom province that were officially recognized, and certified by the Provincial Department of Agriculture. They now began the agricultural collective business-related activities legally. FAEC has worked closely with the Kampong Thom Provincial Department of Agriculture (PDoA) and local authorities to engage in the full process of registration. The newly registered ACs received several training and coaching by project staff and PDAFF's staff. FAEC has supported capacity building, organizational development, businesses startup and development, engaged ACs to stakeholders (Bayon Heritage Company), technical and implementation.

3.4.2 SO2 RESULT 1: THE INSTITUTIONAL STRENGTHENING OF LOCAL PARTNERS AND SHGs ALLOWS IMPROVING THEIR TECHNICAL CAPACITY IN RELATION TO SUPPORTING SMALL-SCALE FARMERS AND THEIR MANAGEMENT CAPACITY ENSURING THEIR SUSTAINABILITY

Under Result 1, there are 7 target indicators being worked out by FES:

1. Increased percentage of partner capacity rate (assessed by using organizational capacity building assessment tool);
2. Number of short studies or assessments;
3. Number of SHGs leaders trained in finance, management and members needs assessment;
4. Gradual forming of SHGs, its functioning until becoming eventually an emergent farmer association (a short video produced annually with the end product at the end of project);
5. Number of water points and wells renovated and maintained;

³² LC Impact Assessment Report

6. Number of new water points and/or wells built;
7. Number of beneficiaries who received quality seeds and agricultural tools; and
8. Project yearly reflection workshop organized by MB, follow by stakeholders meeting

All the target indicators under this result had been achieved. Under this result, the following activities were conducted by LC:

1. Strengthen local partners and other community based organizations (cooperatives, informal groups) institutional capacities in terms of technical, management, governance (improving among other the involvement of women and young), advocacy and business skills
2. Support to individual or collective initiatives (cooperatives, groups, local partners) to develop business and, or, income generating activities by bringing coaching and facilitating access to necessary means (agricultural inputs, credit/grant, water access, etc.)
3. Strengthen small-scale farmers (men, women and young) skills and capacities for transition to sustainable agriculture (agroecology, organic, etc.)
4. Develop a network of leader farmers (model, master, specialize) within community or FO
5. Facilitate market access for individual small-scale farmers and their organizations through the identification of market opportunities and, or, value chain development using among others digital tools
6. Support the emergence of new FO based on existing informal groups or associations
7. Implement awareness raising activities toward beneficiaries and their organizations on environmental and climate change issues
8. Conduct studies/researches to understand the constraints faced by small scale farmers and their organizations including gender and environmental issues, and develop strategies and models to support small scale farming adapted to Cambodian conditions using among other digital technologies
9. Capitalize and disseminate the results of research/studies among small-scale farmers, partners and other stakeholder (Belgian and international NGO, local and Belgian universities, authorities, etc.) using among other digital technologies (website, social networks)

In addition to capacity building and technical support, the project also provided the beneficiaries with agricultural inputs based on their potential; such as rice and vegetable seeds, farm tools and irrigation equipment to support their productions.³³ Table 26 shows the progress of the project in terms of achieving its targets.

Table 26. Achievement of the SO2 R1 targets

| Result indicator | Target | Baseline | Endline |
|--|--------|---|---------|
| R1.1: Increased percentage of partner capacity rate (assessed by using organizational capacity building assessment tool) | 87% | The overall capacity building index score is 87% (MB's organization assessment in 2019) | 87% |
| R1.2: Number of short studies or assessments | 8 | 0 | 8 |

³³ LC Impact Assessment Report

| Result indicator | Target | Baseline | Endline |
|--|--------|--|---|
| R1.3: Number of SHGs leaders trained in finance, management and members needs assessment | 48 | 6 SHG leaders were trained by MODE in 2017 | <ul style="list-style-type: none"> ▪ 24 SHGs have been established ▪ 79 SHG leaders trained |
| R1.4: Gradual formation of SHGs, its functioning until becoming eventually an emergent farmer association (a short video produced annually with the end product at the end of project) | | 0 | 1 Video was produced (Draft) |
| R1.5: Number of water points and wells renovated and maintained | | 0 | 40 (23new) |
| R1.6: Number of new water points and/or wells built | | 0 | 11 (1new) |
| R1.7: Number of beneficiaries who received quality seeds and agricultural tools | | | 289 |
| R1.8: Project yearly reflection workshop organized by MB, follow by stakeholders meeting | | 1 per year | 1 in 6 communes |

Source: LC Internal Report

3.4.2.1 INCREASED PERCENTAGE OF PARTNER CAPACITY RATE (ASSESSED BY USING ORGANIZATIONAL CAPACITY BUILDING ASSESSMENT TOOL). The project has achieved this target (i.e. 87% of the partners have increased their capacity compared to the target of 87%). The project provided training on rice seeds production technique, business plan and bookkeeping, chicken raising, vegetable growing, seed selection, land preparation, chemical fertilizer, pesticide usage, and market linkage. Also, the project provided agricultural inputs and capital, sharing experiences and study tours to other partners and NGOs (Source: KII Small Scale Farmers).

FAO developed TAPE (Tool for Agroecology Performance Evaluation) used to diagnose performance of agroecological systems across many dimensions and better represent the benefits and trade-offs of different agricultural systems. LC led the implementation of TAPE testing in Cambodia. Feedbacks on the relevance and usability of TAPE from partner organizations were also collected during the testing. The regional virtual sharing workshop was organized to reflect on the implementation of TAPE at country level in different contexts and through different modalities, drawing lessons learned and fostering experience sharing among the different stakeholders and identifying opportunities for further application of TAPE. The tool still requires some adjustments to suit the actual or real situation under the Cambodian context (because the tool was developed for use globally) (Source: KII MB and LC).

3.4.2.2 NUMBER OF SHORT STUDIES OR ASSESSMENTS CONDUCTED BY FAEC. The project has achieved this target. Eight studies have been conducted by FAEC (Table 27). Among the studies that have been conducted by the project are:

Table 27. List of short studies or assessments made by FAEC

| No | List of short studies or assessment | Year | By whom | Progress |
|----|--|------|--------------|-----------|
| 1 | Video on safe vegetable production (8) | 2020 | MB & Ecoland | Completed |
| 2 | Video on safe vegetable production in Kampong Thom (2) | 2020 | FAEC | Completed |

| No | List of short studies or assessment | Year | By whom | Progress |
|----|--|------|---------|---|
| 3 | Video on AC business (3) | 2020 | FAEC | Completed |
| 4 | Study on farmers' organizations in Cambodia (4) | 2020 | FAEC | Completed |
| 5 | Video on chicken raising and access to market (5) | 2020 | FAEC | Completed |
| 6 | Video of integration of young farmer into leadership role of AC (6) | 2020 | FAEC | Completed |
| 7 | Video of the most significant change story of young farmer on AE adaptation (7) | 2020 | FAEC | Completed |
| 8 | Video on the gradual formation of SHG, their functioning until becoming eventually emergent Agriculture Cooperative (AC) | 2021 | FAEC | Draft. The sub-title is still being reviewed. |

The details of the capitalization product (e.g. location/provinces and data produced) are listed in Annex 2.

3.4.2.3 NUMBER OF SHG LEADERS TRAINED IN FINANCE, MANAGEMENT AND MEMBERS NEEDS ASSESSMENT. This target indicator was achieved. The target for this indicator is 48 SHGs that are trained on finance and management. The project has provided training to 79 SHGs from 25 SHGs. All the 23 SHGs participated in the dissemination meeting on SHGs by-law and received bookkeeping management training. SHGs by-law is the statute of self-help groups that included group identification, purpose, membership, structure, group meeting, businesses (saving and loan) etc.

3.4.3 SO2 RESULT 2: SHG'S MEMBERS THAT APPLIED A SUSTAINABLE AGRICULTURAL APPROACH, IMPROVED THEIR LEVEL OF ORGANIZATION AND INCREASED THEIR FOOD PRODUCTION

The project brought positive changes to the livelihoods of its beneficiaries like increasing the number of small-scale farmers who adopted sustainable agriculture practices, and increasing the farmers' yields through improved agriculture practices. There are three indicators for this result: (1) Targeted households practiced at least 3 sustainable agricultural practices; (2) Number of beneficiaries who manage to increase their yield of rice, vegetables and chicken; and (3) Number of SHGs that decided to become Farmers Associations. The achievement of the indicators is shown in Table 28.

Table 28. Achievement of the SO2 R2 indicators

| Result indicator | Target | Baseline | Endline |
|--|--|--------------------|--|
| R2.1.: Target households practice Sustainable Agriculture farming system (SA) for at least 3 activities (85% of total) | 255 | 831 in 2016 report | 289 farmers practicing SA |
| R2.2: Number of beneficiaries who manage to increase their yield of rice, vegetables, and chicken ³⁴ | <ul style="list-style-type: none"> ▪ Rice: 60% of beneficiaries increase their yield by +20% ▪ Vegetables: 75% of beneficiaries increase their yield by +30% | | <ul style="list-style-type: none"> ▪ Rice: 47.2% ▪ Vegetables: 57.9% ▪ Chicken: 87.5% |

³⁴ Please refer to Table 7 for the achievement

| Result indicator | Target | Baseline | Endline |
|--|--|----------|---------|
| | <ul style="list-style-type: none"> Chicken: 70% of beneficiaries increase their yield by +30% | | |
| R2.3: Number of SHGs that decided to become Farmer Association (FA) | 8 | 0 | 5 |
| R 2.4: New Model farmers selected and trained | | 0 | 26 |
| R 2.5: SHGs/emerging FOs established, trained, and supported on management, marketing, and assessment of the beneficiaries to strengthen their overall group's performance | | 0 | 24 |

3.4.3.1 TARGETED HOUSEHOLDS PRACTICED AT LEAST 3 SUSTAINABLE AGRICULTURAL PRACTICES. Under this indicator, the project targets a total of 289 farmers who practiced at least 3 SA. The project exceeded the target of 255 farmers. The Impact Assessment conducted by LC revealed that 86.67% of the farmers practiced sustainable rice production, 82% incorporated chicken raising into their integrated farming system, and 91.3% practiced fruit and vegetable intercropping systems at homestead areas after the intervention of the project. The household survey indicates that 18% of the respondents practiced 3 or more technologies, 30.8% practiced 2 technologies and 43.6% practiced only 1 technology (Table 29). The adoption of the number of technologies depends on the farmers' perception on what is applicable to their farms and depending on the crop. In the case of rice for example, the use of organic fertilizers is more appropriate.

Table 29. Number of sustainable agriculture practiced by the beneficiaries

| No. of Sust. Agric. Practices | Agroforestry and other sustainable land management | Intercropping, Multi Story cropping or Alley cropping | No-Tillage Agriculture | Soil and water conservation | Use of organic fertilizers and organic pesticides | Total |
|-------------------------------|--|---|------------------------|-----------------------------|---|-------------|
| Applied 1 Technology | - | - | 2.6% | - | 41.0% | 43.6% |
| Applied 2 Technologies | 7.7% | - | 2.6% | 12.8% | 7.7% | 30.8% |
| Applied 3 Technologies | 2.6% | 2.6% | - | 2.6% | - | 7.7% |
| Applied 4 Technologies | 2.6% | 2.6% | - | 2.6% | 2.6% | 10.3% |
| TOTAL | 12.8% | 5.1% | 5.1% | 17.9% | 51.3% | N=39 |

Source: HH Interview

The capacity building and input provision motivated the beneficiaries to adapt new environmentally friendly agricultural practices that the project introduced. The beneficiaries have expressed commitment that after the project phased out most of the beneficiaries committed to continue these practices.³⁵

³⁵ LC Impact Assessment Study

In Kampong Thom, 70% practiced rice seed selection (white rice), land preparation and use of chemical fertilizers and pesticides in appropriate amounts.³⁶ The farmers did not specify the exact amount of fertilizers applied per hectare since it depends on the condition of their land. Before participating in the training, they excessively applied fertilizers to get more yield. In Prey Veng, the farmers practiced land management, land use and seed selection (Source: KII Master Farmers). The use of organic fertilizers is the most common sustainable agriculture practice adopted by the respondents particularly, using Bokashi fertilizer.

Accordingly, the use of bokashi fertilizers is believed to have its earliest roots in ancient Korea. The traditional form ferments waste directly in soil, relying on native bacteria and on careful burial for an anaerobic environment. A commercial Japanese bokashi method was developed by Teruo Higa in 1982 under the 'EM' trademark (Effective Microorganisms). EM became the best known form of bokashi worldwide, mainly in household use, claiming to have reached over 120 countries.³⁷ The bokashi fertilizer was introduced to the farmer for experiment and has produced promising results. The Udom Soriya AC in Tramkark located in Tramkark District, Takeo Province then produced and sold this fertilizer.

The farmers are using a mix of traditional and sustainable agriculture in their farm (i.e. traditional combined with sustainable agriculture) (Table 30). The use of traditional methods is still highly being used among the beneficiaries of FES, although this has reduced from 92.3% in the baseline to 89.7% in the endline (Table 31). There is a significant number of respondents who have adopted sustainable agriculture, especially in the use of organic fertilizers.

Table 30. Sustainable agriculture practices of the farmers

| Sustainable Agriculture Practices | Battambang | Kampong Thom | Prey Veng | Takeo | TOTAL |
|---|--------------|--------------|--------------|--------------|--------------|
| Practice Sustainable Agriculture | 53.7% | 63.3% | 34.3% | 82.3% | 63.7% |
| ▪ Use of organic fertilizers and organic pesticides | 43.9% | 48.1% | 28.6% | 74.7% | 53.4% |
| ▪ Soil and water conservation | 14.6% | 20.3% | 5.7% | 27.8% | 19.7% |
| ▪ Agroforestry and other sustainable land management | 9.8% | 10.1% | - | 10.1% | 8.5% |
| ▪ No-Tillage Agriculture | - | 3.8% | - | 2.5% | 2.1% |
| ▪ Intercropping, Multi Story cropping or Alley cropping | - | 3.8% | - | 1.3% | 1.7% |
| Do not practice sustainable agriculture | 46.3% | 36.7% | 65.7% | 17.7% | 36.3% |
| N | 41 | 79 | 35 | 79 | 234 |

Source: HH Survey

³⁶ LC Impact Assessment Study

³⁷ [https://en.wikipedia.org/wiki/Bokashi_\(horticulture\)](https://en.wikipedia.org/wiki/Bokashi_(horticulture))

Table 31. Farming practices of the FES beneficiaries

| Farm Practices | Baseline | Endline |
|---|----------|---------|
| Traditional Method | 92.3% | 89.7% |
| Use of Organic Fertilizers and Organic Pesticides | 10.3% | 41.0% |
| No Tillage Agriculture | 2.6% | 5.1% |
| Soil and Water Conservation | - | 5.1% |
| Agroforestry | - | 2.6% |
| Livestock raising by modern technique | - | 2.6% |
| None | 2.6% | 2.6% |

The household survey indicates that the use of sustainable agriculture has moderately improved the economic condition of the households. Among the reasons why the farmers used sustainable agriculture is the lowering of pollution; improving biodiversity (Table 32). Some farmers do not practice sustainable agriculture in their farm citing the following reasons: (1) time consuming/laborious; (2) lack of knowledge; (3) low yield; (4) small farm; and (5) complicated.

Table 32. Reasons for practicing sustainable agriculture

| Reasons of Practicing Sustainable Agriculture | Not Practicing Sustainable Agriculture |
|---|---|
| <ul style="list-style-type: none"> ▪ Lowering pollution through organic farming ▪ Improving biodiversity in the agro-ecosystem ▪ Increasing farm yield | <ul style="list-style-type: none"> ▪ Time consuming/laborious ▪ Lack of Knowledge ▪ Low Yield ▪ Small farmland ▪ Complicated |

Source: HH Survey

3.4.3.2 NUMBER OF BENEFICIARIES WHO MANAGE TO INCREASE THEIR YIELD OF RICE, VEGETABLES AND CHICKEN. The target for this indicator is to increase rice production by more than 20%; increase vegetable production by more than 30%; and chicken production increase by more than 30%. The comparison between current data and the data from the baseline survey shows that 60%, 56% and 47.67% of SA farmers managed to increase their yields of rice (floating rice, dry season rice, and wet season rice). The assessment indicates that among the three commodities, only chicken has exceeded the target.

Rice Production. Based on the comparison between current data and the data from the baseline survey, it shows that 60%, 56% and 47.67% of SA farmers managed to increase their yields of floating rice, dry season rice, and wet season rice.³⁸ In the endline survey, there 47.2% of the farmers whose rice production have increased by 20%. This fell short of the 60% target number of farmers whose production is over 20%.

As indicated in the comparison between the two production periods, the endline production is much higher compared to the baseline indicating that the benefits from the use of sustainable agriculture technology now start to manifest. There are some factors that influence the result of the sustainable agriculture technologies, like the climatic disturbance. The project provided only rice seeds to 20 households who were affected by flooding in 2020, and provided training on natural pesticide

³⁸ Impact Assessment of LC

preparation, dry and liquid compost production.³⁹ The impact assessment of LC noted a decline in yield of rice in 2021 due to prolonged drought from May to August. Some beneficiaries decided to minimize their production due to climate constraints. The impact assessment that was conducted by LC also noted that the production data collected by Mlup Baitong is not different from the production of wet season rice in 2021. The farmers also experienced lower yield in 2020 (295kg/family) due to heavy flooding. Some rice fields were entirely destroyed by the flood leading to no yields.⁴⁰

Vegetable Production. The Impact Assessment study conducted by LC noted that most of the vegetables grown by the FES beneficiaries were cruciferous vegetables and fruity vegetables such as eggplant, hot chili, tomatoes, and other wide variety of greens including herbs.⁴¹ Most vegetables are grown in a small garden in homestead areas and in some cases, under the fruit trees. For vegetables, the production has significantly increased from 12.89 t/ha in the baseline to 21.42 t/ha in the endline (please see Table 7) or a 66.18% increase in production. It is estimated that the number of farmers whose production is over 30% is only 57.9% which fell short than the target of 75%.

Chicken Production. Chicken production is very common among the beneficiaries in 2020 and 2021 as the FES project provided both capacity building and inputs to support the production. Approximately, 82.61% of respondents raised chickens at their homestead areas. The production of chicken has significantly increased, from 49.43 kilos per HH to 97.76 kilos per HH or an increase of 97.8%. There are 87.5% of farmers whose production is over 30%. This number of farmers have exceeded the target of 70%. The project has easily achieved this target considering that the production of chicken has little bearing on the carrying capacity of the land. Most of the farmers produced chicken for commercial purposes. The beneficiaries who attended the chicken production training organized by the project had raised and sold more chickens than those who did not participate. In contrast, the farmers who did not attend the training and used traditional ways to raise chickens, produced mainly for consumption. The impact assessment made by LC noted that the farmers suffered losses in their chicken production due to the outbreak of fowl cholera. In 2020, there was a heavy flood in Kampong Thom province from October to November causing the death of chickens during the floods.

3.4.3.3 NUMBER OF SHGs THAT DECIDED TO BECOME FARMERS ASSOCIATIONS. For this indicator, the project targets 8 SHGs to be converted to Agricultural Cooperatives. Mlup Baitong has successfully organized the individual farmers to form into SHGs. To date, 23 SHGs have been formed. The 23 SHGs are actively working and were able to facilitate the promotion of SAs to its members. FAEC, as the main facilitator, worked closely with the Kampong Thom Provincial Department of Agriculture, Forestry, and Fisheries (PDAFF) in registering potential SHGs to become Agriculture Cooperatives (AC). MB, on the other hand, the partner organization who assisted the farmers supported the establishment of SHGs. MB has supported the 289 SA farmers to establish 24 SHGs.

The formation of agricultural cooperatives is difficult if the farmers immediately form into ACs. Thus, the SHGs are initially formed and later on converted to ACs once they are strong enough (e.g. they effectively manage their financial resources, run their SHGs independently, successfully run their income-generating activities, etc.) and the members understand the benefits of collective action. The SHG is a main mechanism before proceeding to ACs which are more formal structures. The ACs get support from the

³⁹ *Impact Assessment of LC*

⁴⁰ *LC Impact Assessment Report*

⁴¹ *LC Impact Assessment Report*

PDAFF or any financial institution and provide services to its members like lending or engaging in trading. The self-help group has the following objectives: (1) saving, (2) providing a loan to members to start up or enhance their small business, (3) supporting member's businesses, (4) collective action and market access, and (5) exchanging of information, knowledge and practical experiences.

3.4.3.4 OTHER ACHIEVEMENTS. In addition, the project also selected and trained 26 model farmers. The project also provided assistance to established 24 SHGs. They were provided training and supported on the management, marketing and assessing their beneficiaries.

3.4.3.5 IMPACT OF ADOPTING SA TO IMPROVEMENT OF ECONOMIC GROWTH OF SMALL SCALE FARMERS. SA farmers who attended the sustainable agriculture/integrated farming systems training achieved more yields and income than those who did not participate. Most beneficiaries received IFS training from Mlub Baitong. Some beneficiaries also received similar training from other state and non-governmental organizations such as Caritas, Harvest project, and PDAFF. According to the Impact Assessment study conducted by LC, 59.33% of the beneficiaries received training (91% are women). They also received technical assistance on liquid and solid compost production. Those who received training applied these techniques by producing and incorporating liquid and dry composts into their vegetable farms. The SA farmers who applied the techniques achieved more yields and income.⁴² The findings of the impact assessment conform to the findings of the endline assessment where 74% have reported that there is a moderate to significant improvement on the economic condition of the respondent's family (Figure 8).

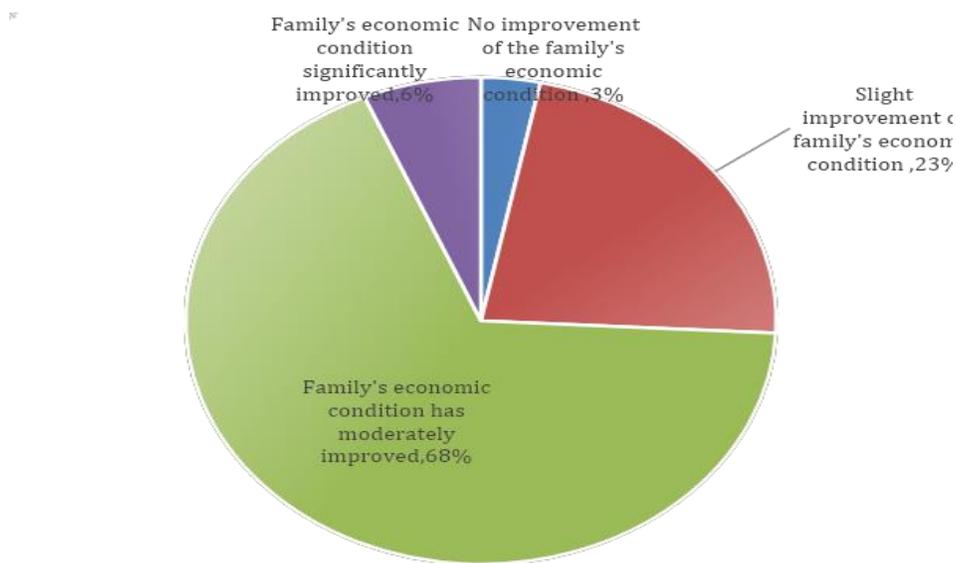


Figure 8. Impact of sustainable agriculture to the economic condition of FES beneficiaries

Source: HH Survey

⁴² LC Impact Assessment Report

3.4.4 SO2 RESULT 3: THE REVENUE OF THE TARGETED VULNERABLE BENEFICIARIES IS IMPROVED

This result has three indicators:

1. Number of beneficiaries who manage correctly their IGA and reached over \$50 profit per month
2. Number of SHGs actively working
3. Number of beneficiary households referred by health partners of LC and the Referral Hospitals or Health Centers (RHs/HCs) to get benefit from FES project

The achievement of the projects with respect to the three indicators is shown in Table 33. The progress report revealed that all indicators have been achieved.

Table 33. Achievement of SO2 R3 Indicators

| Result indicator | Target | Baseline | Endline |
|---|--------|----------|-----------------------------------|
| R3.1: Number of beneficiaries who manage correctly their IGAs and reached over 50 USD profit per month (60% of total) | 60% | | 54% |
| R3.2: Number of SHGs actively working (new) | 15 | 12 | 23 out of 24 are actively working |
| R3.3: Number of beneficiary households referred by health partners of LC and the RH or HC to get benefit from MB's FES project | 65 | 0 | 65 |
| R3.4: Number of beneficiaries identified, provided grant, and supported by new SHG to start up or enhance small businesses or farm activities | | 0 | 429 |
| R3.5: Number of IGA beneficiaries coached and followed up | | 0 | 274 (160 MODE+114 MB) |

3.4.4.1 NUMBER OF BENEFICIARIES WHO MANAGE THEIR IGA CORRECTLY AND REACH OVER \$50 PROFIT PER MONTH.

There are 120 beneficiaries that reached a profit of over \$50. The level of income of the targeted farmers' family is better during the project implementation. All IGA beneficiaries registered under the project received financial or equipment support for business expansion. There were 89.2% of IGA beneficiaries who received this kind of support from Mlub Baitong, and the other 8.1% were supported by MODE. Roughly 59.46% of IGA beneficiaries were trained by the project. The other 40.54% of beneficiaries are newly recruited IGA members and they only received funding and equipment support in late 2021 (August to November).⁴³ In the impact assessment conducted by LC, the average gross income of IGA members was around 583.97\$ per month and the monthly gross expense was approximately \$431.37. In total, the monthly average net profit for IGA members was \$152.60 (including both men and women IGA beneficiaries). The level of income of the targeted farmers is better during project implementation. Before

⁴³ LC. (Undated). *Impact Assessment of Food and Economics Security (FES) Project*. Louvain Cooperation: Phnom Penh, Cambodia.

the project, most of the beneficiaries work in construction. When they participated in the project they earned from agricultural production like vegetable garden, chicken raising (Source: KII Small Scale Farmers).

In the household survey, the estimated number of farmers whose profits reached more than \$50 is approximately 54%. The number of the beneficiaries with profit greater than \$50 is higher compared to the baseline, which is estimated at 46.2% (Figure 9). However, the achievement fell short from the target of having 60% beneficiaries that have profit higher than \$50. The income comes from enterprises like farming (poultry and livestock, fishery, and crop production) and non-farm activities (running a grocery store, selling rice cakes etc.).

Information about IGAs. Almost all IGA beneficiaries in the FES project were women (97.30%). All IGA beneficiaries registered under the project received financial or equipment support for business expansion. There were 89.19% of IGA beneficiaries who received this kind of support from Mlub Baitong, and another 8.11% were supported by MODE. Only 2.7% were supported by both organizations (Mlub Baitong and MODE). Concerning training and technical support, roughly 59.46% of IGA beneficiaries were trained by the project. From February to September 2021, the project staff could not organize capacity building training to IGA beneficiaries due to COVID 19 pandemic restrictions from local authorities. Four main business modules were provided by the project to IGA groups including business management, marketing strategies, inputs and outputs price setting, and market planning.⁴⁴

Types of IGA Business. Among all businesses supported by the project in the intervention areas, grocery business made up the largest proportion (59.46%), followed by family-owned restaurants (18.92%), and other market-oriented businesses (10.81%) which include barber shops, sugarcane juice sellers and others. The remaining IGA businesses are tailor shops (5.41%), motorcycle and bicycle repair shops (2.7%), and salons (2.7%).

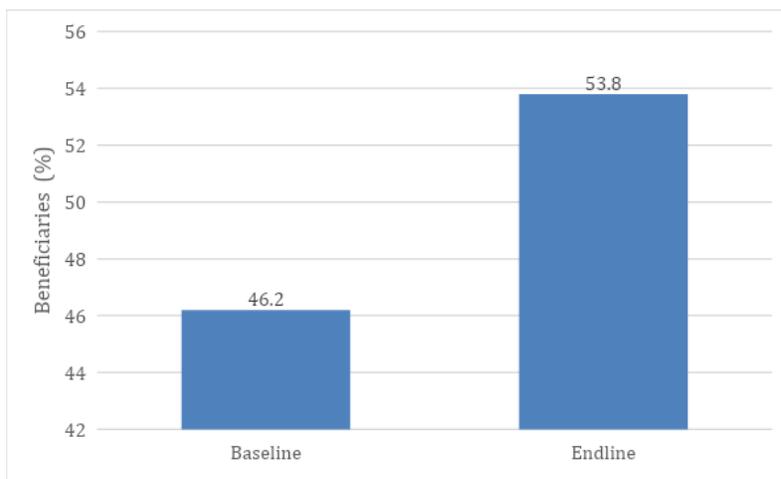


Figure 9. Number of beneficiaries with income >\$50

⁴⁴ LC Impact Assessment Report

3.4.4.2 NUMBER OF SHGs ACTIVELY WORKING. Setting up formal farmers groups leads to an increased opportunities of meetings, exchanges and creates or strengthens social bonds between members.⁴⁵ The target under this indicator has been achieved (i.e. 24 SHGs) (Table 33). To date, 24 SHGs have been formed, 274 sustainable agriculture (SA) farmers and 25 new model farmers have been selected, and 97 IGA beneficiaries received support from the FES project. The project established and conducted follow up support to 24 SHGs. Among them, 22 SHGs are actively working. Each SHG organizes regular monthly meetings, discussing loan distribution among members, revolving funds, income generating business activities, agricultural activities, record keeping and other related issues.

3.4.4.3 NUMBER OF BENEFICIARY HOUSEHOLDS REFERRED BY HEALTH PARTNERS OF LC AND THE RH OR HC TO GET BENEFIT FROM FES PROJECT. The target under this indicator has been achieved. There were a total of 65 beneficiaries that are referred by health partners of LC (Table 33). MB have selected and supported 59 families (42 SA and 17 IGA) with mental health problems in Chamkar Leu district of Kampong Cham province. From January to May 2022, LC will continue to select and support the remaining 6 more families to reach the target of 65 (100%).

3.4.5 SO2 RESULT 4: IMPROVE ENVIRONMENTAL PROTECTION AND CLIMATE CHANGES AWARENESS AND RESILIENCE

The three indicators under this result are:

1. Number of SHG members who have developed a climate change mitigation plan
2. The project stakeholders have put in place measures to mitigate environmental impacts
3. Number of families who have a disposal pit system and properly discard wastes at community level

Most of the result indicators were achieved by the project. Table 34 shows the achievement of the target under this indicator which is mostly achieved.

Table 34. Achievement of the SO2 R4 indicators

| Result indicator | Target | Baseline | Endline |
|--|--|----------|---|
| R4.1: Number of SHG members who have developed a climate change mitigation plan | 47 | 0 | 65 |
| R4.2: The project stakeholders have put in place measures to mitigate environmental impacts | Most of identified measures were implemented | 0 | <ul style="list-style-type: none"> ▪ 61 commitments were made among 47 beneficiaries/producers that were interviewed, using the EIT tool. ▪ 51 of 61 commitments were implemented |
| R4.3: Number of families who have a disposal pit system and properly discard wastes at community level | 35 | 0 | 35 |

⁴⁵ Josse, D., Peeters, A.; Neang, M., Ek, S.; Seang, S.; Ol, R.; Sok, S., Deleener, P. 2018. *Dissemination of Sustainable Technical Innovations among Smallholder Farmers in the South of Kampong Thom, Cambodia. Siem Reap: 4th AFSA International Conference on Food Safety and Food Security, 10th–12th August 2018.*

| Result indicator | Target | Baseline | Endline |
|--|--------|----------|---------|
| R4.4: SHGs/ emerging FOs leaders received knowledge on DRR/CC and able to disseminate to their community people | | 0 | 71 |
| R4.5: Number of beneficiaries affected by flood or drought who received additional support (small grant, seeds, and agriculture tools) | | 0 | 61 |

3.4.5.1 NUMBER OF SHG MEMBERS WHO HAVE DEVELOPED A CLIMATE CHANGE MITIGATION PLAN. For this indicator, the project has a target of 47. The Progress Report of LC revealed that a total of 65 SHGs have developed their climate mitigation plan and exceeded the target (Table 34). The KII also mentioned that the farmers started to practice land preparation, seed selection and composting as part of mitigating climate change (Source: KII Small Scale Farmers). The project promoted the adoption of a climate change mitigation plan and climate change adaptation measures to mitigate the impacts of the environment. During the evaluation close to one third (33%) revealed that they have a climate change mitigation plan in place and also adopted measures to mitigate the impacts to the environment (Figure 10).

3.4.5.2 THE PROJECT STAKEHOLDERS HAVE PUT IN PLACE MEASURES TO MITIGATE ENVIRONMENTAL IMPACTS. Under this indicator, most of the shareholders have identified and implemented measures to mitigate the environmental and climate change impacts (Figure 10). About 31% of the FES beneficiaries reported they have adaptation measures to mitigate the impacts of the environment. The most common adaptation measures adopted by the farmers include the use of drought resistant crops (20.5%), installation of rain water catching jars in the houses (17.9%), and storing crop seeds for planting (17.9%) (Figure 11).The measures to mitigate environmental impacts include the following: Proper use of chemical fertilizer and pesticides; Having a disposal pit; Buying natural fertilizers from AC to apply in their farm land; Planting of cover crops; Applying SA techniques on the vegetable and chicken raising activities (Source: KII Master Farmers).

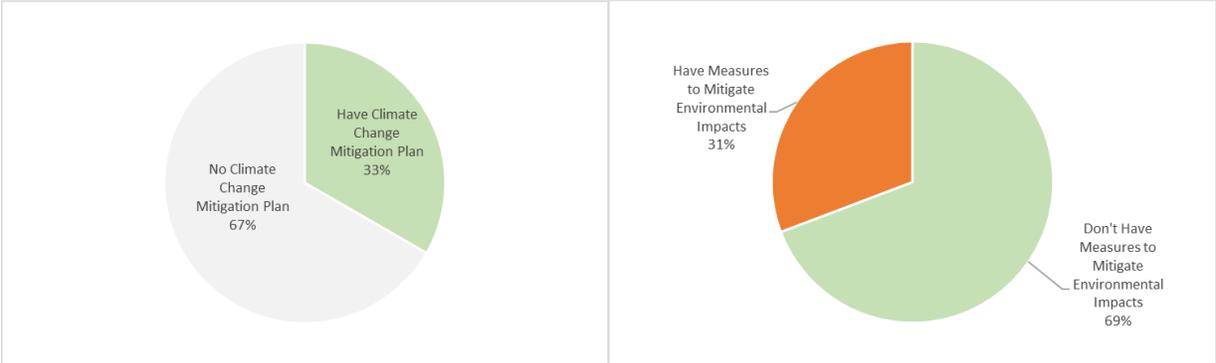


Figure 10. FES beneficiaries who have climate change mitigation plan (left) and adopted measures to mitigate the environmental impacts (right)

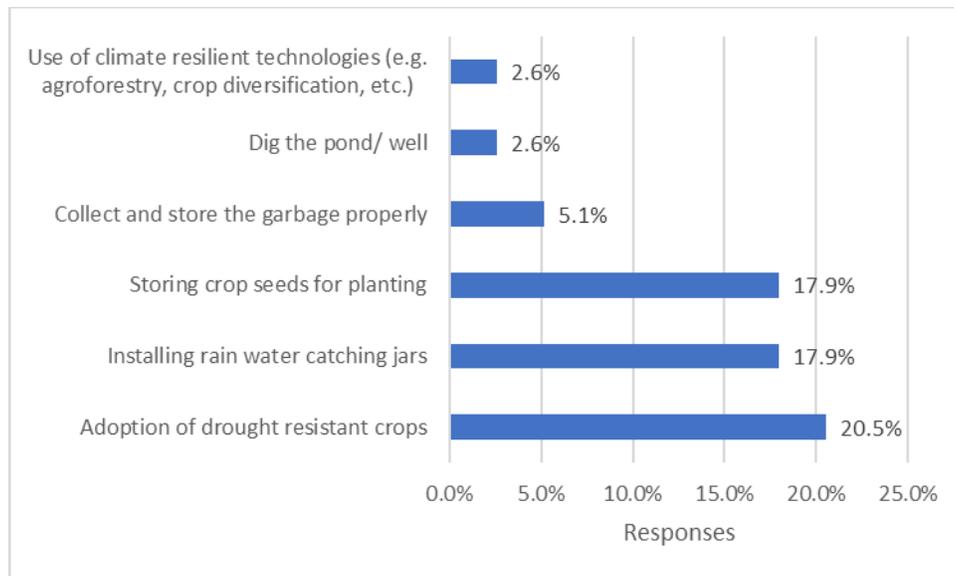


Figure 11. Measures to mitigate the impacts of the environment

The reduction of the use of pesticides is an important measure that minimizes the impact of agriculture to the environment. The monitoring made by ITC indicates contamination of the groundwater with malathion and DDT. The result is quite alarming considering that DDT will persist in the water for several years. Its presence in the deep wells highlights the risks of prolonged use of pesticides. Behavioral changes are very important since the farmers are less concerned about the result and believe that it is the government’s role to address the problem. Some of the measures that were adopted by the farmers to mitigate the environmental impacts are shown in Figure 11.

The promotion of organic fertilizers provides several advantages: (1) reduces the release of Nitrous Oxides, that are generated by the nitrogen-based fertilizers; (2) improve the condition of the soil; (3) improve the condition of the microorganisms; (4) makes use of the organic materials from agro wastes. The farmers who are no longer burning their rice hay prevent the release of carbon dioxide to the atmosphere. To encourage the farmers to adapt the sustainable farming methods, a monitoring was conducted by FAEC and CIRD to ensure quality of the products produced by the famers.

3.4.5.3 NUMBER OF FAMILIES WHO HAVE A DISPOSAL PIT SYSTEM AND PROPERLY DISCARD WASTES AT COMMUNITY LEVEL.

This indicator has been achieved. A total of 35 families have been reported to have put up a waste disposal pit (Table 34). The key informants estimated that around 80% to 90% families have a disposal pit system and properly discard wastes at community level (Source: KII Small Scale Farmers).

The project has a strong contribution to environmental management. FES enjoined the beneficiaries to put up a waste disposal in their community and down to the household level. So far, the waste disposal systems are practiced at the household level. Around 74% have reported that they put up a waste disposal system in their households. Only 26% have reported that they have a communal waste disposal system (Figure 12). From the Key Informant interview, they reported that the communal waste disposal system was not widely adopted since their level of waste is still very low. The biodegradable wastes are allowed to decompose and used as fertilizers to the plants.



Figure 12. Presence of the household waste disposal (left) and communal disposal area (right)

For biodegradable wastes, these were not burned by the farmer beneficiaries (Source: KII Master Farmers). Some farmers start making composts for organic fertilizers from the wastes (Source: KII Small Scale Farmers). The proper disposal of wastes is also motivated by FAEC's incentives for families who collect plastic wastes. A team from UCL developed and designed a waste disposal system for the farmer.

3.4.5.4 OTHER RESULTS. In addition to the above-mentioned indicators, the project also accomplished the following:

- SHGs/Emerging FOs leaders received knowledge on DRR/CC and were able to disseminate to their communities. A total of 71 SHG leaders were able to disseminate DRR/CC knowledge to their communities.
- Number of beneficiaries affected by flood or drought who received additional support. A total of 61 beneficiaries who were affected by flood and droughts have revived support from the project in the form of small grants, seeds, and agriculture tools.

3.4.6 SO2 RESULT 5: EVIDENCE-BASED INFORMATION, STUDIES AND OPERATIONAL RESEARCH ON FARMER'S ISSUES ARE CONDUCTED AND RESULTS ARE DISSEMINATED AMONG FARMERS AND KEY STAKEHOLDERS IN THE SECTOR

Table 35 shows the different indicators and the level of achieving the target. Two out of the three indicators have been achieved. Each indicator is described in the following sections.

Table 35. Achievement of the SO2 R5 indicators

| Result indicator | Target | Baseline | Endline |
|--|--------|----------|---|
| R5.1: Number of capitalization topics carried out | 6 | 0 | 18 capitalization topics were carried out |
| R5.2: Number of thematic working groups organized | 10 | 0 | 8 |
| R5.3: Number of National Seminar organized (in collaboration with Eclasio) | 2 | 0 | 3 |

3.4.6.1 NUMBER OF KNOWLEDGE MANAGEMENT TOPICS CARRIED OUT. The achievement of the project has largely exceeded the target (18 accomplished vs. the target of 6). The list of capitalization products produced by the project is shown in Annex 2. Some of the materials were produced by students as part of their research works. The capitalization materials were presented in various forums and uploaded in the LC websites:

- *Multidimensional benefits of smallholder farmers' good practices (article to international conferences in Brussels): presented at AGRUDEV Conference in Brussels*
- *Cambodian agricultural policies: renewing the role of smallholder farmers: presented at FNASIC Conference in Paris*
- *Spreading agricultural good practices: multidimensional benefits observed in Kampong Thom, Cambodia: presented at the Organic World Congress (OWC) in New Delhi*
- *The study on levels of adaptations by farmers of new technologies in Andoung Pou commune, Baray commune of Kampong Thom province: RUA BSc Student Thesis exist in Khmer*
- *The dissemination of sustainable technical innovations among small holder farmers in the South of Kampong Thom province: presented at AFSA conference*
- *Movie on SA practices by farmers in Kampong Thom province: uploaded in the YouTube Channel of LC*

3.4.6.2 NUMBER OF THEMATIC WORKING GROUPS ORGANIZED. The project organized 8 thematic working groups. The achievement is slightly below the target of 10 thematic working groups (Table 35).

3.4.6.3 NUMBER OF NATIONAL SEMINARS ORGANIZED. The project has achieved its target. A total of 3 seminars are organized by LC. The project has achieved its target. A total of 2 seminars are attended by LC in collaboration with Eclasio.

3.5 EFFICIENCY

A large variance of the actual expenses compared to the budget for FAEC under the FES project. The budget could be attributed to the fraud committed by the 4 staff of the organization. On the overall, however, the total expenditures of FES are still lower compared to its budget. The project was able to meet its commitment since FAEC was committed to meet its target after there was a charge of the organization. It can be noticed however that the budget for personnel is higher compared to its operation (Annex 12).

EFFICIENCY OF ALLOCATION AND MANAGEMENT OF INPUTS. The project was implemented efficiently, particularly in the utilization of the resources. The project tapped different partners to provide their expertise. This approach was able to optimize the use of experts. The program is considered to be economically efficient based on its relatively low investment compared to the expected results like economic advances, livelihood improvement (including aspects such as food security and health), disaster preparedness and social inclusiveness, in relation to the size of the beneficiary population. The presence of partner organizations working on health-related projects in the same area can enhance the effects resulting from the improved economic situation of the people, further reducing expenditures due to health problems. Low investment inputs can have a strong positive impact on the beneficiaries on the promotion and use of natural pesticides and fertilizers, poultry raising, seed selection, sources of water supply such as wells, ponds or small-scale irrigation schemes, and basic agricultural materials and tools. The combined effects of such activities can help achieve the intended goal of providing food security year-round for the beneficiaries and their families.

The efficiency (i.e. accomplished activities against the input) is estimated to be 78.7%. This is based on the ratio between estimated accomplishment of 77.4% (please see Annex 11) against the fund utilization of 98.3% (please see Annex 12).

COMPLETION OF ACTIVITIES. The project is deemed efficient in terms of implementing the planned activities. As shown in Annex 8, all the planned activities were completed. Table 36 shows the summary of the completion of the project is more than 91%.

Table 36. Summary of the completion rate of the planned activities of the project

| Results | Overall completion rate of planned activities |
|--|---|
| <input type="checkbox"/> Result 1: The institutional strengthening of local partners and SHGs allows improving their technical capacity in relation to supporting small-scale farmers and their management capacity ensuring their sustainability. | 98.48 % |
| <input type="checkbox"/> Result 2: SHG's members that applied a sustainable agricultural approach, improved their level of organization, and increased their food production | >100 % |
| <input type="checkbox"/> Result 3: The revenue of the targeted vulnerable beneficiaries is improved | 97.5 % |
| <input type="checkbox"/> Result 4: Improve environmental protection and climate changes awareness and resilience | >100 % |
| <input type="checkbox"/> Result 5: Evidence-based information, studies and operational research on farmer issues are conducted and results are disseminated among farmers and key stakeholders in the sector | 91.7 % |

3.6 IMPACTS OF THE INTERVENTION

3.6.1 VIABILITY OF INCOME-GENERATING ACTIVITIES

The business models that were implemented by the project are viable. The ACs and SHGs showed that their financial capital has increased. The surplus is mostly used in building up its capital. The beneficiaries posted a positive profit (i.e. the income from farming activities are particularly higher compared to the revenue). As discussed in the previous sections, despite showing viability, the target increase in production for rice and vegetables fell short from the planned increase in production. There are few who invested their surplus to productive endeavors (e.g. expansion of the business, buying equipment, buying lands, etc.). Considerable number of farmers used their surplus in buying basic necessities (foods, medicines, etc.).

3.6.2 BENEFITS AND CONSTRAINTS FACED BY THE FARMERS FROM COLLABORATION

The collaboration has led to increased production and higher income. The FES beneficiaries were benefited through the knowledge on market linkage, rice seed production techniques and other various agricultural expertise (Source: KII Small Scale Farmers). In the household interview, 76% indicated that the project helped them in generating income. The response is consistent among the male and female respondents. The main role of the project in increasing the income of the households is the skills the project provided to them, agriculture materials, and the access to capital.

3.6.3 Levels of Use of Outputs Produced by the Project

In general, the production level of the FES beneficiaries is for consumption (Table 37). There are close to half who said their production is for subsistence and only 15% mentioned that their production is mostly on commercial level. Noticeably, only 10.3% of the respondents mentioned that they invested part of

their income. Looking at the uses of the surplus, mostly are used for basic necessities such as food, clothing and medicine (38.5%); for education of children and buying appliances (18% each). It can be noticed that a small number of respondents used their surplus for expanding their business (formation of capital; and investing on equipment). Those who are expanding their sales resorted to expanding the cultivation area either by buying more lands or renting from other land owners.

Table 37. Level of production of the FES beneficiaries

| Farm Production Level | Respondents |
|--|-------------|
| PRODUCTION LEVEL | |
| ▪ For subsistence only (majority of the production is for consumption) | 48.7% |
| ▪ Semi-Commercial (I generate income from selling almost 50% of my farm products) | 30.8% |
| ▪ Commercial (Depend most of my income from sale of farm products) | 15.4% |
| ▪ Not applicable (not a farmer) | 5.1% |
| BENEFICIARIES WHO INVESTED PART OF THEIR INCOME | |
| ▪ Did Not Invest | 89.7% |
| ▪ Invested | 10.3% |
| USE OF THE SURPLUS | |
| ▪ Basic necessities (food, clothing, medicine) | 38.5% |
| ▪ Children's education | 17.9% |
| ▪ Buy appliances | 17.9% |
| ▪ Formation of capital to expand business | 12.8% |
| ▪ Pay off the debts | 7.7% |
| ▪ Invest on equipment | 2.6% |
| ▪ Repair the house | 2.6% |
| MEANS OF EXPANDING SALES | |
| ▪ Expanding the area for cultivations (by renting or buying more lands or expand existing cultivations in own lands) | 30.8% |
| ▪ Buy equipment | 15.4% |
| ▪ Acquire more techniques through attending trainings | 10.3% |
| Total | N=39 |

3.6.4 IMPROVING THE SERVICES AND VALUE CHAIN

The Sustainable Rice Platform (SRP) is a multi-stakeholder partnership that promotes resource efficiency and sustainability both on-farm and throughout the rice value chain. SRP is heavily promoted by UNEP for improving rice farming and by decreasing the use of chemical inputs and securing livelihood of rice farmers. With the project intervention, the ACs was able to have a business contract for the supply of SRP rice to two Cambodian major buyers who are milling and selling to big multinational companies. Initially, the SRP is considered an Assurance Scheme and on-pack eco-label to enable industrials to de-risk their supply chains by sourcing through SRP-verified suppliers.

3.7 SUSTAINABILITY

The current effort of the project to form ACs helped in ensuring the sustainability of the project. The ACs will have legal status with established governance structures and they enjoy the support from government and other institutional donor programs.

TECHNICAL SUSTAINABILITY. The knowledge transferred to the beneficiaries include technical skills on Agriculture, Income Generation Activities, practical economy, Self-Help Groups', Saving Groups' and Farmers Associations or Cooperatives' roles and functions, climate change adaptation, and Disaster Risk Reduction education. The knowledge will remain even after the project phases out, and will be part of the human and social capital of the community. The increased use of natural pesticides and fertilizers as well as the adoption of improved farming techniques and crop diversification will also have a long-lasting benefit. Additionally, SHGs, and Farmer Associations learned to work together which resulted in empowerment of the community.

FINANCIAL SUSTAINABILITY. The project will be financially sustainable due to additional capacity of groups to manage their funds, as well as the higher incomes derived from IGAs, market promotion for local products, and the increased productivity resulting from the use of Sustainable Agriculture, diversified crops and improved techniques.

SOCIAL SUSTAINABILITY. The mechanisms for association roles and functions, planning and decision making created under the intervention will stay after the end of the project. There will be increased responsibility and accountability on the role of group leaders and enhanced capacity and empowerment of members while the improved economic situation in a community will result in a better social environment, with a possible reduction of internal migration and a stronger social inclusiveness.

EXIT STRATEGY. The involvement of local authorities such as village chiefs and commune councils during the program's implementation is also expected to contribute to the long-term sustainability and impact of the intervention. FAEC is expected to strengthen the quality of their service provision, increase their presence at provincial level and eventually increase the number of members in the targeted provinces. This will allow them to increase their income through membership and training services provided to a growing number of Farmers Associations and Agricultural Cooperatives.

CHANGE IN THE BEHAVIOR TOWARDS SUSTAINABLE AGRICULTURE AND IMPACTS TO PRODUCTION. The awareness of the farmers on sustainable agriculture is higher. However, they pursue the adoption of the SA technology cautiously. They tested part of their land for the SA technology and at the same time continue the conventional agricultural practices in some parts of their land. This is to spread the risk of adopting the technology. The current yield of the farmers is higher compared to before the project, indicating that the SA technologies are starting to produce good results as conceptualized. Among the factors that motivates the farmers to adopt the sustainable agriculture include the following:

1. Access to Loans. The small scale farmers expected to avail of loans from the ACs and SHGs. The small scale farmers could not avail of loans directly from the financial institutions since they do not have collaterals. The ACs, who can get assistance from the government, funding grants, or loans from financial institutions and can extend loans to its members without collaterals. The ACs can purchase a common property, once it has acquired sufficient capitalization, which can be used as collateral in applying loans from the banks.
2. Access to Knowledge and Skills and Technologies. The members are expecting to get knowledge and technologies when they join the ACs or the Farmers' Organizations. The technologies that are coursed through the ACs farmer trainers will increase the knowledge of the farmers in improving their farming methods. The members of the ACs will also have the chance of participating in seminars and farm visits.

3. Favorable Pricing of Products and Inputs through Collective Marketing and Bulk Procurement. The farmers can avail a favorable price when they market through the ACs instead of selling directly to the private companies or traders. The ACs are expected to negotiate and look for better buyers on behalf of the groups and prevent exploitation. The ACs can also facilitate the certification of products of its members which can then command a better price.

A 4 point Likert Scale was used to assess the behavior of the respondents on organic farming using a scale of (1 = Strongly Disagree and 4 = Strongly Agree). Some of the questions that are not favorable to the attitudes were reversed to get the correct score. There were 8 questions given to the respondents. Based on the number of questions and the scale, it is expected that each respondent will have a lowest score of 4 and a highest score of 32. The final categorization of the behavior of respondents is given in the following categories:

- Very Low = 4-8
- Slightly Low = 9-16
- Slightly Positive = 17-24
- Very Positive = 25-32

The result indicates the residents have a Very Positive Attitude towards the organic farming (Figure 14).

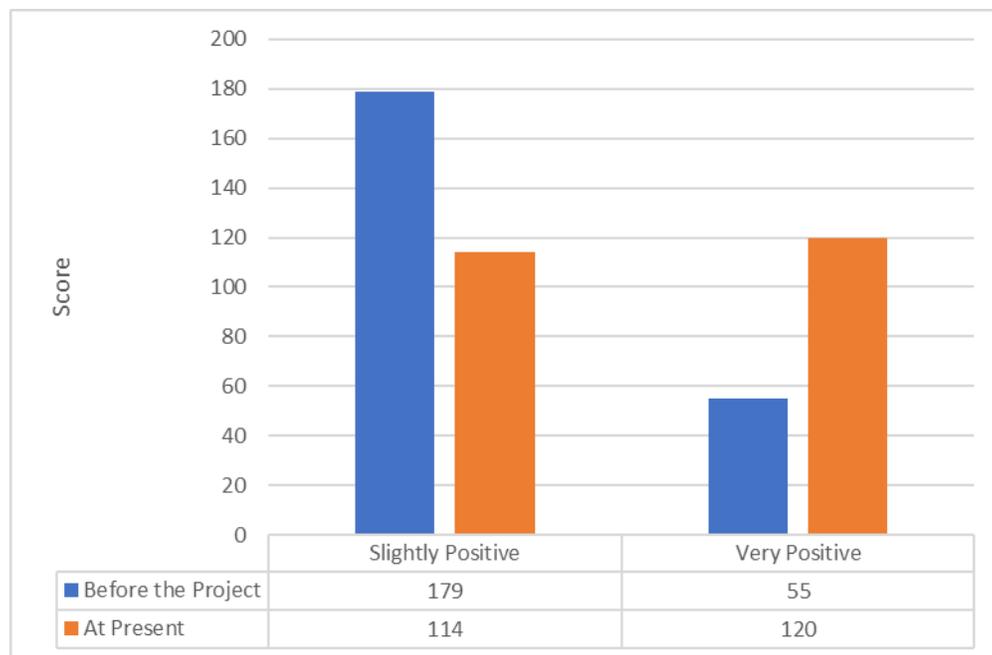


Figure 13. Attitudes of the respondents on organic farming

FACTORS INFLUENCING THE TRANSITION TO SUSTAINABLE AGRICULTURE PRACTICES. The beneficiaries in the FES project are very open to learn and practice new agricultural techniques. Only 3% of the total respondents perceived new techniques as not useful, while the other 97% think the opposite.⁴⁶ The adoption of the SA was influenced by several factors which include the knowledge of the technologies, the outcome, and the market opportunities of the organic products. The different factors that influence the decision of the FES

⁴⁶ LC Impact Assessment Report

beneficiaries to adopt sustainable agriculture are presented in Table 38. The data shows the important role of the Farmer Extension Workers in influencing the behaviors of the farmers to adopt the SA technologies by testifying on the efficacy of the technologies. Also, seeing the successful farmers using the technologies easily convince the farmers to adopt the technologies. Greater interest can also be achieved from the monetary reward. SA products that may command a better price will provide an incentive and motivation of the farmers to adopt the technologies.

Table 38. Factors that influence the decision of the FES beneficiaries to adopt the sustainable agriculture practices

| | Neary Samaki SHG | Prasat Samaki AC | Sansom Rikchomroun SHG | Total |
|--|------------------|------------------|------------------------|-------|
| Motivation to Practice SA | | | | |
| ▪ Information dissemination | 33.3% | 57.9% | 36.4% | 46.2% |
| ▪ Motivation from the extension workers | 33.3% | 21.1% | 18.2% | 23.1% |
| ▪ Other farmers experienced better production and income | 22.2% | 5.3% | 9.1% | 10.3% |
| ▪ Personally experienced better production and income | 22.2% | 5.3% | - | 7.7% |
| ▪ Premium prices of organic products | 11.1% | 5.3% | - | 5.1% |
| ▪ Success of others | 11.1% | 5.3% | - | 5.1% |
| Reasons for Not Adopting SA | | | | |
| ▪ Did Not Produce Any Positive Results (Yield and Income) | 11.1% | 15.8% | - | 10.3% |
| ▪ The Technology/Producing Natural Fertilizers is Time Consuming | 11.1% | 5.3% | 9.1% | 7.7% |
| ▪ Lack of Materials/Inputs and Water | - | - | 18.2% | 5.1% |
| ▪ Lack of Knowledge | - | 5.3% | 9.1% | 5.1% |
| ▪ Lack of Labor | - | - | 9.1% | 2.6% |
| ▪ Waiting Other Farmers to Try the Technology | 0.0% | 5.3% | 0.0% | 2.6% |
| N | 9 | 19 | 11 | 39 |

There is a gradual transition to a more sustainable agriculture even though the farmers were trained on SA techniques. Most of the farmers still practice conventional farming using chemical fertilizer and pesticides. The farmers practiced conventional farming (using chemical fertilizers and pesticides) because the effect is faster and has high yields to meet the market demand. They first wanted to get experience before fully adopting the technologies. The key informant interviews revealed that the farmers combine conventional and sustainable agriculture methods. Most of the farmers applied the SA technology in some parts of their farm land and some portion were applied with chemical fertilizers (Source: KII TrUAC and BUAC). This practice is common among poor farmers who are generally averse to new technologies. They cautiously test or observe the outcome of the new technology to avoid incurring losses in case the new technology will not work.

CHALLENGES OF ESTABLISHING SHGs, FOs AND ACs AND EFFICIENCY OF OPERATIONS. Establishing the SHGs, ACs and FOs are confronted with several challenges that include the following:

1. **Limited understanding on the purpose of ACs.** The Key Informant interviews reveal that some of the members of the SHGs, FOs and ACs indicate that the purpose of the farmer organizations, cooperatives and self-help groups was not internalized. In the agricultural cooperatives, there is a need for the members to support the ACs by selling their products through the ACs instead of selling directly to private companies. The ACs is supposed to provide a better trading agreement on behalf of the farmers to get better prices.
2. **Limited financial capital of ACs and SHGs.** The Farmer Organizations lack the capital to engage in trading. For the newly established ACs, they cannot absorb all the products from the farmers. The farmers instead sell their products directly to private companies.
3. **Limited capacity of AC committees.** The members of the ACs and SHGs believe that the committees do not have enough capability to manage the ACs and engage in collective business. Bringing in young members of the community can at least help the ACs addressing the limited capacities of the committee members who are old and have limited education.
4. **Dependence on assistance from NGOs to sustain the operation of the SHGs, FOs and ACs.** The SHGs are expected to depend on the assistance of NGOs. Mature SHGs should be converted to ACs. The SHGs, however, will play an important role in the formation of ACs. The SHGs will be an important precursor of ACs since forming the ACs is a complicated process and will require some capital. It will be logical if before forming the ACs, the communities will initially start as SHG and then be converted to ACs after gaining enough experience in collective business.
5. **Limited competitiveness, limited access of market and business opportunities** The ACs will ultimately engage in the trading of the products from its members. The market, however, is volatile affecting the operation and business of the ACs. The ACs are still struggling to identify the business opportunities where they are strong and on how to stay competitive. Some of the companies directly sell their agricultural inputs to the farmers, instead of selling through the ACs. This situation only indicates the possibility that ACs are selling their inputs at high prices which defeat the purpose of having an AC. Once the ACs can be bought in bulk, the prices are supposed to decrease, giving no reason for the farmers to buy directly from the input suppliers. On the other hand, some farmers sell directly to private companies indicating that ACs are buying the products of the farmers at a lower prices compared to what the private companies are offering. Again, this defeats the purpose of ACs who are supposed to buy the products at a competitive or prices higher than the private companies are offering.
6. **Delinquent payment of loans and dues of the members/borrowers.** Some members are delinquent in their payments of dues to SHGs and the ACs. The late payments of the loans and the membership dues to the organization will seriously affect the operation of the ACs or SHGs.

VIABILITY OF SHGs AND FOs. SHGs started to earn and were able to manage their revolving funds. From the initial fund, the capital of SHGs has increased. Based on the current performance of the SHGs, there is potential that the community can start a collective effort to start a business. However, the support to SHGs is limited. Once the SHGs have started to generate sufficient capital from the small business, they can move into forming agricultural cooperatives which are supported by the government and covered by a legal framework.

3.8 CONTRIBUTION TO RESULTS

3.8.1 CONTRIBUTION OF THE PROJECT TO JOINT STRATEGIC FRAMEWORK (JSF)

Agriculture is one of the major contributors to the deterioration of the environment. The greenhouse gasses that are emitted from agriculture activities contributed to climate change which the project needs to address. The small-scale farmers are among the sectors affected by the impact of climate change. Providing climate change mitigation measures is significantly needed among the community members considering that many households have been affected by floods and droughts. The project has continued to the achievement of JSF-G6 through the development of the climate change mitigation and measures that mitigate the impacts of the environment.

3.8.2 CONTRIBUTION TO GENDER MAINSTREAMING

The FES has a significant contribution to gender mainstreaming. Through the project, there was an increased participation of women in community involvement through the SHGs and the ACs. The women also participated in various capacity building activities of the project, particularly training on finance and management. The project has increased the participation of women in the income generating activities which resulted in strengthening the financial positions or income of women and will be less dependent on their husbands. Major investments or major decisions made for the family are mostly done by both spouses.

There is an increased participation of women in running the ACs/FOs especially in decision making and planning of the ACs/SHGs and FOs. Although the women actively participate in the ACs/FOs, the Farmer Organizations are mostly male-headed. Yet, the male members of the organization respected the opinions of the female members, and respected the female committee members.

3.9 LESSONS LEARNED⁴⁷

1. **The assistance of NGOs is crucial in the establishment of Self-Help Groups (SHGs) and formalization to Agriculture Cooperatives (ACs).** The core element of the FES project is to establish and build community structures that can help farmers implement their activities and find both technical and financial support. The formation of SHGs and ACs has been realized with the assistance of MB and FAEC in collaboration with Louvain Cooperation. The local partners provided services in assisting the formation of SHGs and ACs. MB helped facilitate the establishment of SHGs and developed the SHGs internal policy (by-law).
2. **To be viable, the AC's need to be linked to private companies.** A successful trading relationship was established between the Agricultural Cooperatives (AC) and a private company. To expand the agricultural business and generate revenues, FAEC assisted in the signing of a commercial contract between the three ACs and Bayon Heritage Company to supply natural fertilizer to ACs.
3. **Small scale farmers easily adopt the technologies by imitating successful farmers.** The community members only started adopting the sustainable agriculture technologies after observing some farmers

⁴⁷ *Extracted from FES Project Lessons Learned*

who succeeded in implementing the sustainable agriculture technology. Farmer imitating the successful farmers has resulted in increased food production in the community.

4. **Poor farmers can be competitive in their farming through collective trading.** Farmers’ Organizations help the farmers to be competitive and can serve as conduit in extending technical and financial assistance. An exchange of best practices, peer to peer support to start-up or to expand the activity can be carried out through collective business and negotiate for better price.
5. **Target setting needs to be benchmarked with the production level of the other countries.** Despite showing viability of the farming activities, the target increase for rice and vegetables fell short from the planned increase in production. It appears that the target set in the Project Document seemed to be unrealistically high compared to the current production level of neighboring countries like Vietnam that is more advanced in terms of rice and vegetable production.

3.10 SWOT ANALYSIS

The strengths, weaknesses, opportunities and that facing the FES project is summarized in the matrix below:

| | |
|--|--|
| <p>STRENGTHS:</p> <p>Uni4Coop Program and Partnership:</p> <ul style="list-style-type: none"> ▪ Strong collaboration with partners that bring in different skills to assist the farmers and the ACs <p>ACs, SHGs and Producer Group Strengthening:</p> <ul style="list-style-type: none"> ▪ SHGs organized into ACs and ACs organized into federations or unions ▪ Strong cohesion among the members of ACs <p>Farmer-to-Farmer Extension</p> <ul style="list-style-type: none"> ▪ A Farmer-to-Farmer learning system is in place | <p>OPPORTUNITIES:</p> <p>Uni4Coop Program and Partnership:</p> <ul style="list-style-type: none"> ▪ Presence of network of/platform (e.g. ALiSEA) for exchange of knowledge ▪ Availability of researches and publications ▪ Linkage with the Research institutions (RUA, ITC and CIRD) and Belgian Universities (UCLouvain and ULiège) <p>Business Development</p> <ul style="list-style-type: none"> ▪ The evolving popularity of contract farming ▪ NGOs providing technical assistance to ACs to engage in business ▪ Linkage with private companies/sector <p>ACs, SHGs and Producer Group</p> <ul style="list-style-type: none"> ▪ Communities joining SHGs and ACs <p>AE/SA Technology Adoption:</p> <ul style="list-style-type: none"> ▪ Availability of TAPE Tool (already tested by U4C) <p>Environment and Natural Resources</p> <ul style="list-style-type: none"> ▪ Awareness on climate change and environment ▪ Farmers starting to adopt sustainable agriculture due to market demand of products from sustainable agriculture |
| <p>WEAKNESSES:</p> <p>Business Development</p> <ul style="list-style-type: none"> ▪ ACs do not have enough capital for trading | <p>THREATS:</p> <p>Uni4Coop Program and Partnership</p> |

| | |
|--|--|
| <ul style="list-style-type: none"> ▪ ACs lack the capacity and knowledge about the rice market <p>ACs, SHGs and Producer Group</p> <ul style="list-style-type: none"> ▪ Limited funding, capitalization and income of ACs; lack of business engagement | <p>ACs, SHGs and Producer Group</p> <ul style="list-style-type: none"> ▪ High staff turnover of Partners NGOs <p>AE/SA Technology Adoption</p> <ul style="list-style-type: none"> ▪ Some famers still use unsustainable farming methods <p>Business Development</p> <ul style="list-style-type: none"> ▪ Limited access to capital due to lack of collateral ▪ Few farmers invested their savings/surplus income ▪ Lack of financial programs designed for ACs ▪ Complicated process of applying loans in the rural banks due to bureaucratic process ▪ High interest rates from the financial institutions <p>Environment and Natural Resources</p> <ul style="list-style-type: none"> ▪ Farmers are vulnerable to droughts and floods ▪ Use of banned pesticides (DDT) by the farmers ▪ Contamination of the ground water with pesticides which may affect the quality of organically grown products |
|--|--|

3.11 RECOMMENDATIONS

A. ACs, SHGs and Producer Groups Strengthening

1. Develop the skills of local youths through volunteer and internship programs at the ACs. The local youths should have adequate skills before getting employed. The skills of the fresh graduates can be developed through volunteering and internship programs at ACs. The internship program can be linked with the academic institutions who will supply the fresh graduates or On-the-job trainings (OJT). The volunteer and internship programs can benefit both the ACs and at the same time develop a pool of skilled young graduates.

B. Business Development

1. Develop a potential product (i.e. “champion products”) linked to the government’s programs such as the One –Village-One Product movement and to the regional value chain. The project should identify priority products that can be promoted. This may include the organic aromatic rice, organic vegetables, spices, and other products that can be produced in the target areas. The Government of Cambodia started to adopt One Village One Product (OVOP) movement to promote rural economic growth in 2006 and a legal framework supporting the OVOP movement is already in place. The “One Village One Product National Committee” was established by Royal Decree No. NS/RKT/0106/043 dated January 27, 2006, and the Sub-Decree No. 436 dated June 26, 2006 on the organization and functioning of the “One Village One Product National Committee”. Historically, Cambodia has had a development model similar to the OVOP movement in the past where some villages specialized in producing particular products that the village population was good at. Since officially adopted, the OVOP movement in Cambodia has been gaining importance as a tool for development and the future development prospect is quite promising, especially

due to a strong political support from the Prime Minister.⁴⁸ While a champion product will be promoted, the farmers preference will still be respected. Furthermore, the product to be promoted should fit with the ecological condition of the area. The promotion and support in development of champion products should not be done at the expense of a diversified production system with many recycling and synergies among the elements of the production system (one of the objectives of AE).

C. AE/SA Technology Adoption

1. Institutionalize the use of TAPE Tool. FAO developed TAPE (Tool for Agroecology Performance Evaluation) that is used to provide a diagnostic of performance of agroecological systems across many dimensions and better representing the benefits and trade-offs of different agricultural systems. LC coordinated the first large-scale pilot testing of TAPE with FAO for which Eclasio was part of the 10 organizations testing it in Cambodia, leading to several publications.⁴⁹ A regional virtual sharing workshop was organized in September 2021 to reflect on the implementation of TAPE at country level in different contexts and through different modalities, draw lessons learned and foster experience sharing amongst the different stakeholders and identify opportunities for further application of TAPE. The tool still requires some adjustments to suit the actual or real situation under the Cambodian context (because the tool was developed for use globally) (Source: KII MB and LC). The adjustments may include modifying the semantics considering that the tool is built on a stepwise approach with different steps that need to be followed. The succeeding projects should take advantage of the availability of this tool.

D. Environment and Natural Resources

1. Introduce biodigester to the members. The project should take advantage of the acceptance of organic fertilizers among the farmers. The biodigester can be distributed to the farmers to process the agricultural wastes and animal manures to generate fertilizers and cooking energy. Composite biodigesters (e.g. biodigesters produced by ATEC) are recommended considering that this type is easy to install compared to the bricks design promoted by National Biodigester Programme (NBP) of MAFF. Considerations, such as the after-sales services, should be taken into account in the distribution of biodigesters. For example, ATEC provides after-sales services to its customers, resulting in its success in marketing. The biodigester will have several benefits: (1) reducing the dependence on wood for cooking thereby reducing deforestation; (2) reducing emission of GHGs, especially from manures and decomposing plant litters; (3) produce organic fertilizers from the slurries produced by the biodigester; and (4) reduces health risks as the gas produced from biodigester prevent exposure of the household, especially the pregnant women, to smoke compared to ordinary cooking stoves. Considering that the composite biodigesters have higher upfront cost, the project may assist the Agricultural Cooperatives to extend loans to its members or develop other appropriate shared investment approaches with interested farmers.

2. Conduct a survey and mapping of pesticide contamination of the soil and use of software to model the extent of groundwater contamination using models such as MODFLOW. The initial findings of ITC-RUA-LC study showed that some groundwater has been contaminated by DDT and Malathion. The extent of contamination needs to be estimated to make corrective actions. Estimating the extent of contamination is a complicated process. Usually, GIS-based modeling software will be used to estimate the extent of the contamination. In this case, MODFLOW, a popular software developed by the U.S. Geological Survey (USGS). MODFLOW is considered an international standard for simulating and

⁴⁸ <https://asean.org/wp-content/uploads/2012/05/3.-OVOP-Guidelines.pdf>

⁴⁹ Personal Communication: Amaury Peeters

predicting groundwater conditions and groundwater/surface-water interactions and is widely accepted for its ease of use and flexibility in working with other programs. The code is developed in FORTRAN and runs in a DOS window taking a variety of text files as inputs, and generating both text and binary output files.⁵⁰ Due to the paucity of groundwater modeling experts in Cambodia, the project may extend capacity building to ITC and research institutions in the use of the groundwater modeling software.

3. Monitor the impacts of the intervention in terms of reducing GHGs. Considering that the project has been working to reduce the impacts of agriculture to the environment, it is highly recommended to estimate the impacts of the interventions on GHGs. Including the monitoring of GHGs can provide a holistic picture on the positive externalities generated by the project. A simple estimation of the GHG emission from the agricultural activities will be used. The Ex-Ante Carbon-balance (Ex-ACT) tool of FAO⁵¹ can be used to estimate the greenhouse gas emissions from the agroecosystem.

E. Project Operation and Management

As in the UpScale Project, it is likewise recommended that for the similar projects, more allocation should be put to direct interventions. It was noted that the budget allocation for personnel is higher compared to the operation.

⁵⁰ <https://www.waterloohydrogeologic.com/learning-groundwater-modeling/#:~:text=MODFLOW%20is%20considered%20an%20international,in%20working%20with%20other%20programs>.

⁵¹ <https://www.fao.org/in-action/epic/ex-act-tool/suite-of-tools/ex-act/en/>

ANNEXES

Annex 1. Sampling Frame

| | Battam Bang | Kampot | Kg Cham | Kg Speu | Kg Thom | Oddor M. Chey | Prey Veng | Siem Reap | Stung Treng | Svay Rieng | Takeo | Phnom Penh |
|------------------|-------------|--------|---------|---------|---------|---------------|-----------|-----------|-------------|------------|-------|------------|
| 1. Donors | | | | | | | | | | | | |
| 1. LC | | | | | | | | | | | | 1 |
| 2. ECLOSIO | | | | | | | | | | | | 1 |
| 2. Partners | | | | | | | | | | | | |
| 3. CIRD | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 4. FAEC | 1 | 1 | | 1 | 1 | | 1 | | | 1 | 1 | 1 |
| 5. ISC | | | | | 1 | | | | | | 1 | |
| 6. MB | | | | | 1 | | | | | | | 1 |
| 7. Ecoland | | | | | | | | | | | | 1 |
| 3. Beneficiaries | | | | | | | | | | | | |
| 8. BUAC | 1 | | | | | | | | | | | |
| 9. TrUAC | | | | | | | | | | | 1 | |
| 10. SHG | | | | | | | | | | | | |
| 11. AC | | | | | | | | | | | | |
| 4. Collaborators | | | | | | | | | | | | |
| 12. ALiSEA | | | | | | | | | | | | 1 |
| 13. DACP | | | | | | | | | | | | 1 |
| 14. FCFD | | | | | | | | | | | | 1 |
| 15. GRET | | | | | | | | | | | | 1 |
| 16. ITC | | | | | | | | | | | | 1 |
| 17. UCLouvain | | | | | | | | | | | | 1 |
| 18. WWF | | | | | | | | | | | | 1 |

Annex 2. List of capitalization products⁵²

| List of capitalizations | Year | By whom | Completion status |
|---|---|------------------------------------|-------------------|
| 1. Multidimensional benefits of smallholder farmers' good practices (article to international conferences in Brussels) | Results presented at AGRUDEV Conference in Brussels in May 17 | Felicien Camille and LC | Completed |
| 2. Cambodian agricultural policies: renewing the role of smallholder farmers | Results presented at FNASIC Conference in Paris in Jun 17 | Felicien Camille and LC | Completed |
| 3. Spreading agricultural good practices: multidimensional benefits observed in Kampong Thom, Cambodia | Results presented at the Organic World Congress (OWC) in New Delhi in Nov 17 | Felicien Camille and LC | Completed |
| 4. The study on levels of adaptations by farmers of new technologies in Andoung Pou commune, Baray commune of Kampong Thom province | RUA BSc Student Thesis exist in Khmer - Mrs. OL Ravoin & SEANG Sonida, in 2017 Existing Executive Summaries in English need to be improved (a 2-page format with predefined format from AFD could be useful) | RUA students | Completed |
| 5. The dissemination of sustainable technical innovations among small holder farmers in the South of Kampong Thom province | 2018 Results presented at AFSA conference | Delphine Josse from UCL | Completed |
| 6. The role of gender in agriculture in Tnoat Chum commune, Baray district of Kampong Thom province | 2018 | RUA student | Completed |
| 7. Movie on SA practices by farmers in Kampong Thom province | 2018 2 full versions: English & with Khmer Subtitles both already on YouTube Channel of LC + 3 short versions focusing on 3 different dimensions of sustainability (internal) | Good Morning Beautiful (GMB) Films | Completed |

⁵²Source: LC

| List of capitalizations | Year | By whom | Completion status |
|---|---|---|--|
| 8. The link between the real economy of the rural households and the different sources of microcredit in Kampong Thom province | 2019 | Noemie Martin, UCL student | Completed |
| 9. Household Survey on Gender, Land & the right to food (DEMTER) (16) | Final report 2019 | Swiss Agency for Development and Cooperation and LC | Completed |
| 10. 10.1FAO's TAPE tool Assessing Transitions to Sustainable Agricultural and Food Systems: A Tool for Agroecology Performance Evaluation (TAPE) (9) | Scientific article is published by FAO https://www.researchgate.net/publication/347326998_Assessing_Transitions_to_Sustainable_Agricultural_and_Food_Systems_A_Tool_for_Agroecology_Performance_Evaluation_TAPE | FAO and LC | Completed |
| 10.2FAO TAPE Testing in Cambodia (9.1) | LC's report 2020 | | |
| 10.3 FAO TAE regional virtual experience sharing workshop about the use of the Tool for Agroecology Performance Evaluation (TAPE) (9.2) | 2021 | LC | Completed |
| | | LC | Completed |
| 11. Impact of smallholders' farmers agricultural practices on water quality in Kampong Thom | 2020-2021 | ARES & Ecoland | Draft report is completed. Amaury and Professor Mathieu Javaux will provide comments on this report. |

| List of capitalizations | Year | By whom | Completion status |
|---|-----------|--------------|-------------------|
| 12. Impact Assessment survey with 150 beneficiaries | 2020-2021 | Mlub Baitong | Completed |
| 13. Case study on farmer to farmer led extension service | 2021-2022 | LC | Draft |
| 14. Case study on soil fertility management practices | 2021-2022 | LC | Draft |
| 15. Case study on business operation of the AC in Kampong Thom | 2021-2022 | LC | Draft |
| 16. Case study on chicken feed improvement in TAKEO | 2021-2022 | LC | Draft |
| 17. Video on the gradual forming of SHG, their functioning until becoming eventually emergent Agriculture Cooperative | 2021-2022 | FAEC | Draft |
| 18. Baseline survey: Household Economic and Food Security in Kampong Thom (1) | 2020 | MB & Ecoland | Completed |

Source: LC Internal progress report

Annex 3. Roles of the different key actors

| Actors: Description and General role | Specific Role in UpScale Project | Specific Role in FES Project |
|--|---|---|
| AIMS | Provide training to farmers in the community on vegetable planting, poultry raising, rice seed selection and market linkage. | |
| BUAC (Battambang Union of Agriculture Cooperative) | Partner of Eclasio | |
| CIRD (Cambodian Institute for Research and Rural Development) | <ul style="list-style-type: none"> ▪ Partner of Eclasio ▪ Provide training on rice seed techniques to farmers to produce rice seeds ▪ Support rice seeds producers to find market (domestic and export) for their products ▪ Provide training on chicken raising and vegetable planting ▪ Provide technical and managerial support to farmer and ACs in improving their production ▪ Facilitate in forming farmer organization, producer groups or agricultural cooperative ▪ Reinforce existing standard (PGS, GI, Organic...) ▪ Develop new social and quality standards, quality inspections, audits, controls, certifications (AE, fair-trade. ▪ Conduct Research on farm technique; and designing farm tools and equipment (e.g. direct seeder; farm equipment, etc.) ▪ Conduct participatory research on the use of green fertilizer, integration of rice field and vegetable and chicken raising | <ul style="list-style-type: none"> ▪ |
| DACP (Department of Agricultural Cooperative Promotion) of the General Directorate of Agriculture, Ministry of Agriculture, Forestry and Fisheries | <ul style="list-style-type: none"> ▪ Collaborates with Eclasio ▪ Conduct Trainings of Trainers with AC promoters on guidelines and standard materials developed by DACP for AC ▪ Organize AC Business Forums ▪ Monitoring of project activities and outcomes ▪ Review of Quality standards and PGI feasibility assessments and guidance | |

| Actors: Description and General role | Specific Role in UpScale Project | Specific Role in FES Project |
|--|---|---|
| | on AC access to irrigation and business development | |
| DPA | Will serve as national secretariat of ALiSEA-Cambodia | Will serve as national secretariat of ALiSEA-Cambodia |
| FAEC (Federation of farmer associations promoting family agriculture enterprise in Cambodia) | <ul style="list-style-type: none"> ▪ Partner of Eclasio ▪ Strengthen the capacity of the farmer organization especially the AC ▪ Provide access to market, link the product of agri member to market, coordinate member who need capital to expand their business and help facilitate in the bank ▪ Strengthen the human resource, (strengthen the capacity of the service provider (volunteer who are skilled farmers) by providing training so they can share the knowledge to the agriculture cooperative. ▪ Rice seed component, partner with CIRD that focus experimentation on the technical training to the farmer to produce quality rice seed with the standard PGS, studying business plan link rice seed to the market. All this program FAEC working with CIRD | <ul style="list-style-type: none"> ▪ Partner of LC ▪ Strengthen the services provided to Farmers Organizations (FOs) ▪ Provided training on marketing, management, leadership, rice seeds production to the farmers. ▪ FAEC also support and coordinate to build one rice stock for AC/BUAC. ▪ Provided support in setting up AC and training on management, basic account, agriculture, provided training on rice seeds production techniques and market to sell rice seeds and white rice productions. |
| GIZ | <ul style="list-style-type: none"> ▪ Implemented projects in in FAEC intervention area (Baray and Santuk districts) on vegetable production, poultry, and family diet ▪ Provide training and inputs to the MFTs on technical, and practicing. | |
| GRET and ALiSEA | <ul style="list-style-type: none"> ▪ Collaborate with UNI4COOP ▪ GRET is supporting the members of ALiSEA network at the regional level and one of it is Cambodia. ▪ A regional network. ALiSEA is an open coalition of stakeholder network, that gather all organizations promoting agroecology ▪ GRET help to set up steering committee to manage the Uni4Coop Program/ Consortium ▪ Foster knowledge, sharing among the members, working on agroecology. | <ul style="list-style-type: none"> ▪ Collaborate with UNI4COOP ▪ GRET is supporting the members of ALiSEA network at the regional level and one of it is Cambodia. ▪ A regional network. ALiSEA is an open coalition of stakeholder network, that gather all organizations promoting agroecology ▪ GRET help to set up steering committee to manage the Uni4Coop Program/ Consortium ▪ Foster knowledge, sharing among the members, working on agroecology. |

| Actors: Description and General role | Specific Role in UpScale Project | Specific Role in FES Project |
|---|--|---|
| | <ul style="list-style-type: none"> ▪ Engaged on dialogues, training ▪ Collaborate with UNI4COOP ▪ Organize online sharing meetings to share experience. | <ul style="list-style-type: none"> ▪ Engaged on dialogues, training ▪ Collaborate with UNI4COOP ▪ Organize online sharing meetings to share experience. |
| ISC (Irrigation Service Center) | <ul style="list-style-type: none"> ▪ Partner of Eclasio ▪ Develop intervention strategy on irrigation; improve water access, availability and management for supplementary irrigation of small-scale farmer' parcels ▪ Experiment and capitalizing upon the involvement of AC in the process of introducing and familiarizing farmers to irrigation technics ▪ Works only in Teamwork district, Takeo province ▪ Provided small irrigation to farmers around 25-30 families with 50% cost subsidy | |
| ITC | <ul style="list-style-type: none"> ▪ Partner of Eclasio ▪ Develop a digital marketing platform that links the buyer and the producers (through funding from ARES through ARES synergy project). | <ul style="list-style-type: none"> ▪ Collaborates with LC ▪ Conduct water testing |
| MFR Cambodia (Association de l'Union des Maisons Familiales Rurales du Cambodge (Association of Union of Rural Family Houses in Cambodia) | <ul style="list-style-type: none"> ▪ Train Training of Trainers organized under the program; ▪ MFR students participate in field experimentation, studies, and action-researches; ▪ Support MFR students to engage in agroecological productions, to become Master-Farmers and/or marketing facilitators | |
| Mlup Baitong | | <ul style="list-style-type: none"> ▪ Partner of LC ▪ Support in setting up 23 SHG ▪ Organize exchange visit to the target community and also hosting the donor visit. ▪ Support and train 24 model farmers ▪ Strengthen Self-Help Groups (SHGs), model farmers and farmers through sustainable agriculture (SA) practices, select and coach other potential small-scale business owners in income generating activities (IGA). |
| PDAFF | <ul style="list-style-type: none"> ▪ Provide technical support on SRP, vegetable and poultry raising. | |

| Actors: Description and General role | Specific Role in UpScale Project | Specific Role in FES Project |
|---|---|--|
| RUA-ECOLAND Research Center | | <ul style="list-style-type: none"> ▪ Collaborates with LC ▪ Facilitate opportunities to conduct research among target groups of local partners. ▪ Build the capacity of both MB, FAEC ExCom Members and staff on data collection, analysis, processing and production of documents. ▪ Technical advisor in the implementation of the first selected studies and operational researches. ▪ In charge of operational researches on the role of smallholder farmer systems, on the process of farmers' innovations and local water needs and accessibility of smallholder farmers. |
| TruAC (Teamwork Union of Agriculture Cooperative) | <ul style="list-style-type: none"> ▪ Partner of Eclasio | |
| Uni4Coop Consortium | <ul style="list-style-type: none"> ▪ An organization/consortium and the member are Eclasio and LC. ▪ Part of the network of ALiSEA in Cambodia. | <ul style="list-style-type: none"> ▪ An organization/consortium and the member are Eclasio and LC. ▪ Part of the network of ALiSEA in Cambodia. |

Annex 4. SWOT Analysis Matrix for UpScale Project

| SWOT Factors | Relevance of the Factors ⁵³ | Strategic Actions | Key Result Indicators |
|---|--|--|--|
| Strengths: ⁵⁴ | | | |
| Uni4Coop Program and Partnership | | ACs, SHGs and Producer Groups Strengthening: <ul style="list-style-type: none"> ▪ Organize AC membership seminars in communities | <ul style="list-style-type: none"> ▪ AC membership seminars conducted |
| <ul style="list-style-type: none"> ▪ Participation of different partners that bring in different skills to the assist the farmers and the ACs | 4 | | |
| ACs, SHGs and Producer Group Strengthening: | | | |
| 1. The ACs are now recruiting the youths to be part of their set-up | 1 | | |
| 2. The ACs are already organized into federations or unions | 3 | | |
| 3. Strong cohesion among the members of ACs | 2 | | |
| Farmer-to-Farmer Extension | | | |
| <ul style="list-style-type: none"> ▪ Highly educated Farmer Trainers (some are Teachers) ▪ A Farmer-to-Farmer learning system is in place | 4 | | |
| Weaknesses | | | |
| Uni4Coop Program and Partnership: | | Business Development <ul style="list-style-type: none"> ▪ Conduct financial literacy training to the farmers and members of the ACs/SHGs | <ul style="list-style-type: none"> ▪ Financial literacy trainings conducted |
| 1. Loose coordination among Eclasio and LC partners | 4 | | |
| 2. Difference in approach to implement the same output (e.g. Agro-Ecology and Sustainable Agriculture) | 1 | | |
| Farmer-to-Farmer Extension: | | | |
| 1. Many Service Providers are still new and lack the experience and knowledge on AE/SA | 4 | | |

⁵³ 1: Not Relevant; 2: Moderately Relevant; 3: Relevant; 4: Very Relevant

⁵⁴ What are the current strengths of the industry that can be used to address the problem and achieve the vision/goals? Indicators/Factors (e.g. competitive advantage, resources available; products that are performing well, etc.)

| SWOT Factors | Relevance of the Factors ⁵³ | Strategic Actions | Key Result Indicators |
|--|--|--|--|
| 2. Limited information on the list of Service providers that can be tapped for Farmer-to-Farmer Extension | 2 | | |
| ACs, SHGs and Producer Group | | | |
| 1. Many AC members lack the understanding of the beneficiaries of cooperative membership | 1 | | |
| 2. Ageing AC committee members and lack of interest of youths to take positions in the agricultural cooperatives | 2 | | |
| 3. Many ACs still do not engage in business or trading | 3 | | |
| 4. Decline of FAEC membership due to fraud committed by some Staff | 4 | | |
| AE/SA Technology Adoption: | | | |
| 1. Lack of knowledge on AE/SA technologies | 4 | | |
| Opportunities: | | | |
| Uni4Coop Program and Partnership: | | Environment and Natural Resources Development and Management | <ul style="list-style-type: none"> ▪ Community Fish Refuge Areas established ▪ Communal Forest established |
| 1. Presence of network of/platform (e.g. ALiSEA) for the exchange of knowledge | 2 | <ul style="list-style-type: none"> ▪ Establish Community Fish Refuge Areas ▪ Develop a Communal Forest | |
| 2. Availability of researches and publications | 1 | | |
| 3. There are Organizations and Research Institutions who have high specialization in their own fields | 3 | | |
| 4. Support for more farmer-based research through Community Participatory Action Research | 3 | | |
| 5. Local partners are dependent on the external funding | 4 | | |
| 6. Access to R&Ds due to strong collaboration with research institutions | 3 | | |
| Business Development | | | |

| SWOT Factors | Relevance of the Factors ⁵³ | Strategic Actions | Key Result Indicators |
|---|--|--|---|
| 1. NGOs providing technical assistance to the ACs to engage in business | 3 | | |
| 2. Opportunities for the digital marketing | 4 | | |
| 3. Linkages with the private sector companies for the trading of farm products | 4 | | |
| ACs, SHGs and Producer Group | | | |
| 1. Government support for the formation of ACs | 4 | | |
| Environment and Natural Resources | | | |
| ▪ The forest and fishery resources providing safety nets to the famers during periods of economic stress | 4 | | |
| Threats | | | |
| Uni4Coop Program and Partnership | | ACs, SHGs and Producer Group Strengthening: | <ul style="list-style-type: none"> ▪ MAFF TWG meetings attended ▪ Volunteer Program implemented ▪ Youths trained on computer literacy ▪ Training on food processing and slaughterhouse management conducted ▪ Chicken slaughterhouse established ▪ Training on meat quality inspection conducted ▪ Groundwater mapping that are contaminated with pesticides |
| 1. Complexity of the collaboration framework of the LC, Eclasio and its members - Complexity of dealing with several actors and putting their acts together | 4 | <ul style="list-style-type: none"> ▪ Volunteer Program implemented ▪ Train the young/educated staff of ACs on computer literacy | |
| 2. Some of the service providers (Farmer Trainers) are still weak and need further enhancement of their capacity | 2 | Business Development: | |
| ACs, SHGs and Producer Group | | <ul style="list-style-type: none"> ▪ Training on food processing (meat, fish and vegetables) and slaughterhouse management ▪ Training on meat quality inspection ▪ Assist the AC/Producer Groups putting up of slaughterhouse | |
| 1. High staff turnover of Partners NGOs | 2 | | |
| 2. Some companies sell directly to the members of the ACs | 4 | | |
| 3. Costly process of transformation of SHGs to ACs | 3 | | |
| EA/SA Technology Adoption | | | |
| 1. There are still limited documentation showing the benefits of AE/SA technologies | 2 | Environment and Natural Resource Management | |
| 2. Some farmers are not concerned between ordinary | 4 | | |

| SWOT Factors | Relevance of the Factors ⁵³ | Strategic Actions | Key Result Indicators |
|--|--|--|-----------------------|
| paddy rice from quality rice seeds as planting materials. Some companies are also selling ordinary paddy rice as seeds at a lower price | | <ul style="list-style-type: none"> ▪ Conduct a survey and groundwater mapping that are contaminated with pesticides | |
| 3. Limited access to irrigation water to support crop production | 4 | | |
| 4. Some farmers are still reluctant to fully adopt the AE/SA technology since they are still not fully convinced on the benefits of AE/SA technology | 4 | | |
| Business Development | | | |
| 1. Funding are becoming difficult to sustain the operation of the ACs and the Local Partners | 4 | | |
| 2. Some companies sell directly to the AC members instead to the ACs | 3 | | |
| 3. Some AC members sell their products directly to the companies instead to the ACs | 3 | | |
| 4. Some companies sell low quality and cheap seeds to the members | 4 | | |
| 5. Complexity of applying loans for the ACs | 2 | | |
| 6. Lack of financial programs designed for the ACs | 3 | | |
| 7. Complicated process in applying loans in the rural banks due to bureaucratic process | 2 | | |
| Environment and Natural Resources | | | |
| 1. Use of banned pesticides (DDT) by the famers | 3 | | |
| 2. Contamination of the water table with pesticides which may affect the quality of organically grown products | 4 | | |

Annex 5. SWOT Analysis Matrix for FES Project

| SWOT Factors | Relevance of the Factors ⁵⁵ | Strategic Actions | Key Result Indicators |
|--|--|--|--|
| Strengths: ⁵⁶ | | | |
| Uni4Coop Program and Partnership | | ACs, SHGs and Producer Groups Strengthening: ▪ Organize membership meetings in the communities | <ul style="list-style-type: none"> ▪ Membership meetings conducted ▪ Market agreements with the private business |
| <ul style="list-style-type: none"> ▪ Participation of different partners that bring in different skills to the assist the farmers and the ACs | 4 | | |
| ACs, SHGs and Producer Group Strengthening: | | | |
| <ul style="list-style-type: none"> ▪ Strong cohesion among the members of ACs | 2 | | |
| Farmer-to-Farmer Extension | | | |
| <ul style="list-style-type: none"> ▪ A Farmer-to-Farmer learning system is in place | 4 | | |
| Weaknesses | | | |
| Business Development | | | |
| <ul style="list-style-type: none"> ▪ ACs do not have enough capital for the buying of rice | 4 | | |
| ACs, SHGs and Producer Group | | | |
| <ul style="list-style-type: none"> ▪ Limited Funding and capitalization and income of ACs; lack of business engagement | 4 | | |
| AE/SA Technology Adoption: | | | |
| Opportunities: | | | |
| Uni4Coop Program and Partnership: | | AE/SA Technology Adoption: ▪ Institutionalize the TAPE Tool | <ul style="list-style-type: none"> Monitoring implementation using TAPE tool ▪ Biodigesters installed |
| <ul style="list-style-type: none"> ▪ Presence of network of/platform (e.g. ALiSEA) for the exchange of knowledge | 2 | | |
| <ul style="list-style-type: none"> ▪ Availability of researches and publications | 1 | | |
| | | Environment and Natural | |

⁵⁵ 1: Not Relevant; 2: Moderately Relevant; 3: Relevant; 4: Very Relevant

⁵⁶ What are the current strengths of the industry that can be used to address the problem and achieve the vision/goals? Indicators/Factors (e.g. competitive advantage, resources available; products that are performing well, etc.)

| SWOT Factors | Relevance of the Factors ⁵⁵ | Strategic Actions | Key Result Indicators |
|--|--|--|--|
| <ul style="list-style-type: none"> Linkage with the Research institutions (RUA, ITC and CIRDA) | | <p>Resources</p> <ul style="list-style-type: none"> Introduce biodigester to the members Monitor the impacts of the intervention in terms of reducing GHG emissions <p>Business Development:</p> <ul style="list-style-type: none"> Develop a potential product and link with the government programs such as the One –Village-One Product to penetrate the marketability of products | |
| Business Development | | | |
| <ul style="list-style-type: none"> The evolving popularity of contract farming | 2 | | |
| <ul style="list-style-type: none"> NGOs providing technical assistance to the ACs to engage in business | 3 | | |
| <ul style="list-style-type: none"> Linkage with the private companies/sector | 4 | | |
| ACs, SHGs and Producer Group | | | |
| <ul style="list-style-type: none"> Communities formed to SHGs and ACs | | | |
| EA/SA Technology Adoption: | | | |
| <ul style="list-style-type: none"> Adoption of organic fertilizers by the farmers | | | |
| <ul style="list-style-type: none"> Availability of TAPE Tool | | | |
| Environment and Natural Resources | | | |
| <ul style="list-style-type: none"> Farmers are starting to adopt the sustainable agriculture due to market demand of products sustainable agriculture | | | |
| <ul style="list-style-type: none"> Awareness on climate change and environment | 4 | | |
| Threats | | | |
| ACs, SHGs and Producer Group | | <p>ACs, SHGs and Producer Group Strengthening:</p> <ul style="list-style-type: none"> Develop skills of local youths through volunteer and internship programs at the ACs. <p>Environment and Natural Resource Management</p> <ul style="list-style-type: none"> Conduct a survey and mapping of pesticide contamination of the soil | <ol style="list-style-type: none"> Volunteer Program implemented Groundwater mapping that are contaminated with pesticides |
| <ul style="list-style-type: none"> High staff turnover of Partners NGOs | 2 | | |
| EA/SA Technology Adoption | | | |
| <ul style="list-style-type: none"> Prevalence of using the traditional farming methods | | | |
| Business Development | | | |
| <ul style="list-style-type: none"> Limited access to capital due to lack of collateral | 4 | | |
| <ul style="list-style-type: none"> There are few farmers who invested their savings/surplus income | | | |

| SWOT Factors | Relevance of the Factors ⁵⁵ | Strategic Actions | Key Result Indicators |
|---|--|---|-----------------------|
| <ul style="list-style-type: none"> ▪ Lack of financial programs designed for the ACs | 3 | and use of software to model the extent of groundwater using GIS modeling software (e.g. MODFLOW) | |
| <ul style="list-style-type: none"> ▪ Complicated process in applying loans in the rural banks due to bureaucratic process | 2 | | |
| Environment and Natural Resources | | | |
| <ul style="list-style-type: none"> ▪ Farmers are vulnerable to droughts and floods | | | |
| <ul style="list-style-type: none"> ▪ Use of banned pesticides (DDT) by the famers | 3 | | |
| <ul style="list-style-type: none"> ▪ Contamination of the water table with pesticides which may affect the quality of organically grown products | 4 | | |

Annex 6. SCM Grid

Scoring of the ACs using the SCM Grid

| Province | AC | NGOs conducting Scoring | Scoring 80/100 grid |
|----------------------------|---|-------------------------|---------------------|
| Takeo | Udom Soriya AC | FAEC | Yes |
| | Phum Trapeang Sro Nge AC | FAEC | Yes |
| | Trapeang Krognoung | FCFD | Yes |
| Prey Veng | Prek Phdao AC | FAEC | Yes |
| | Ponleu Kaksikor Khum Kampong Seung AC | FAEC | Yes |
| | Baphom Meanchey AC | FCFD | Yes |
| Kampong Thom Battambang | Trapeang Reusey AC | FCFD | Yes |
| | Chamroeur Phal Reangkesey AC | FAEC | Yes |
| | Ponleu Thmey Kdey Sangkheum Ney Kaksikor AC | FAEC | Yes |
| Kampong Speu Svay Rieng | PUAC AC | FAEC | Yes |
| | Beungso Meanchey AC | FAEC | Yes |
| | Sang Hak Kaksikor AC | FAEC | Yes |
| | Srov Smach Kampong Ro AC | FAEC | Yes |
| | Samaki Khum Samley AC | FAEC | Yes |

Note: There were total of 48 ACs of FAEC that supported by Eclasio : Takeo- 8, BTB-14, Prey Veng - 3, Kg. Speu-5, Kg. Thom-4, Svay rieng-7, Steung treng-3, Oddar Meanchey-1, Kampot-1, Kg. Cham-1, Siem Reap-1

Annex 7. Steps toward becoming Agricultural Cooperative (AC)

(overall duration is about 5-7 months):

- 1) Organize the meeting with farmers or saving group to introduce about the setting up of AC and discuss about their interest to become AC
 - 2) Accompany the representative of farmers to meet the Provincial Department of Agriculture (PDA) to inform about their interest to become AC
 - 3) Disseminate about the concept of AC to the farmer group members with participation from PDA staff
 - 4) Help farmer group to prepare the terms & conditions and internal rules
 - 5) Prepare business plan
 - 6) Organize conference with the farmer group members to elect the chair and deputy
 - 7) Prepare report on the result of the conference and other support document such as term & conditions and internal rules to submit to PDA to request for the certificate or license for setting up of AC. It takes two to three months to be approved by PDA. Then when they get license and they become officially AC.
- FAEC facilitated training to strengthen the capacity to service providers of 3 ACs on business plans and strategies, bookkeeping and management, leadership and responsibilities and Sustainable Rice Platform (SRP) standard and Participatory Guarantee System (PGS) standard. There were 63 service providers have been trained including 32 women, 19 youths.
 - After provision of SA technical training from the project, some farmers have been selected to provide agricultural material, including 3 farmers from 3 ACs based on their business plan. The support for this material has contributed to the start and expansion of agricultural production, increasing the income of farmers under the project goals.
 - After provided the capacity building, the service providers brought their knowledge and experiences to share with the members of ACs through training and visits as well. In fact, it has changed the capacity and human resources in each AC to ensure the sustainability of both the economic and productive development processes of AC and its member.
 - Mainly, the AC's business plan is related to engagement with private sector to sell fertilizers (organic and chemical fertilizer), animal feeds, insecticide, and fungicide (chemical). It is an early stage to get support from FAEC within a short period of time. It is required for more investment and support for each AC to become more mature and functional in their business management.

Annex 8. Achievement of Results of FES

Result 1: The institutional strengthening of local partners and SHGs allows improving their technical capacity in relation to support small-scale farmers and their management capacity ensuring their sustainability.

| No | Activities | Partner of execution | Rate of realization |
|--|--|----------------------|---------------------|
| 1.1 | <ul style="list-style-type: none"> ▪ Organizational Capacity Building Assessment for MB was conducted in 2019. QRCP tool was used to do this assessment. ▪ The capacity building plan for 2019 was also developed with participation from MB team. ▪ MB also developed their own capacity building plan 2019-2020. This plan covered the knowledge and skills that are identified among the team. The financial support for this support is from VBNK, BfdW, We Effect, and MB. | MB | 100 % |
| 1.2 | <ul style="list-style-type: none"> ▪ Organizational Capacity Building Assessment for FAEC was conducted in 2019. QRCP tool was used to do this assessment. The overall index score for FAEC is 66% ▪ The capacity building plan for 2019-2020 was also developed with participation from FAEC team. | FAEC | 100% |
| 2 | <ul style="list-style-type: none"> ▪ FAEC completed 1 study and 7 video productions. The financial support is from DGD, Agricorn & AFDI. | FAEC | 100 % |
| 3 | <ul style="list-style-type: none"> ▪ MODE and MB have established 24 SHGs. 79 SHG leaders trained on bookkeeping, management and members' needs assessment. | MODE and MB | 100% |
| 4 | <ul style="list-style-type: none"> ▪ One Video related to the formulation of SHG into AC was produced (draft version). The sub-title in English will be reviewed by Giuliana in 2022. | FAEC | 90% |
| 5 | <ul style="list-style-type: none"> ▪ Water points and wells were renovated and maintained | MB | 100% |
| 6 | <ul style="list-style-type: none"> ▪ New water points or well were constructed | MB | >100% |
| 7 | <ul style="list-style-type: none"> ▪ Beneficiaries who received quality seeds and agricultural tools (289/300) | MB | 96.33% |
| 8 | <ul style="list-style-type: none"> ▪ Reflection workshop is organized annually in 6 communes | MB | 100% |
| Overall completion rate of planned activities to achieve R1 | | 98.48 % | |

Result 2: SHG's members that applied a sustainable agricultural approach, improved their level of organization, and increased their food production

| No | Activities | Partner of execution | Rate of realization |
|----|---|----------------------|---------------------|
| 1 | <ul style="list-style-type: none"> ▪ MB conducted Impact Assessment Survey among 150 households in 2021. From this survey, it was reported that among all SA farmers in the project, 86.67% practiced sustainable rice production, 82% incorporated chicken raising into their integrated farming system, and 91.3% practiced fruit and vegetable intercropping system at homestead areas after the intervention of the project. | MB | 100% |
| 2 | <ul style="list-style-type: none"> ▪ Baseline survey was completed in 2020 and the impact assessment survey was completed in 2021. ▪ Based on the comparison between current data and the data from the baseline survey, it shows that 60%, 56% and 47.67% of SA farmers managed to increase their yields of floating rice, dry season rice, and wet season rice. ▪ The data from the current study showed that in 2020 approximately 71% of the total respondents produced and sold vegetable surplus to market. ▪ Based on data from 2020 and 2021, more than 90% of the beneficiaries raised chicken at homestead areas for both household consumption and for selling after received support from the project. | MB | 100% |
| 3 | <ul style="list-style-type: none"> ▪ Partner did not establish the farmer association. ▪ But MB has established 24 SHG. They selected and supported 289 SA farmers. ▪ FAEC selected and supported 259 SA farmers who are the members of 5 ACs. Moreover, FAECs also supported vegetable group, chicken raising group, rice seeds and rice paddy group and cassava production group. ▪ FAEC has facilitated in forming production group in each AC and provided capacity building on sustainable agriculture techniques to farmers under the project target through training by the Master Trainer of FAEC, Staff has organized the exchanged visits to share experiences and best practices among them. There were 259 farmers were participated in the training on sustainable agriculture technical knowledge, including vegetables growing, chicken raising, rice and rice seed production as well. In addition, farmers applied this knowledge directly in their farms, focusing on integrated sustainable agriculture. | MB & FAEC | 100% |
| 4 | <ul style="list-style-type: none"> ▪ Model farmers selected and trained (26/24) by MB | MB & FAEC | >100 % |

| No | Activities | Partner of execution | Rate of realization |
|--|--|----------------------|---------------------|
| | <ul style="list-style-type: none"> FAEC selected and trained 63 service providers | | |
| 5 | <ul style="list-style-type: none"> 24 SHGs established, trained, and supported on management, bookkeeping, marketing, beneficiaries' assessment to strengthen their overall group's performance | MB | 100% |
| Overall completion rate of planned activities to achieve R2 | | >100 % | |

Result 3: The revenue of the targeted vulnerable beneficiaries is improved

| No | Activities | Partner of execution | Rate of realization |
|----|---|----------------------|---------------------|
| 1 | <ul style="list-style-type: none"> The Impact Assessment Survey was conducted with 12 IGA and 25 SA & IGA. About 59.46% of IGA beneficiaries were trained by the project. The other 40.54% of beneficiaries are newly recruited IGA members and they only received funding and equipment support in late 2021 (August to November). As a principle, 4 main business modules were provided by the project to IGA groups including business management, marketing strategies, inputs and outputs price setting, and market planning. The average gross income of IGA members was around 583.97\$ per month and the monthly gross expense was approximately 431.37\$. In total, the monthly average net profit for IGA members was 152.60\$ (including both man and women IGA beneficiaries). | MB | 100 % |
| 2 | <ul style="list-style-type: none"> The project has established and conducted follow up support to 24. Number of SHGs actively working is 22. Each SHG organizes regular monthly meeting, they discuss about loan distribution among members, revolving funds, income generating business activities, agricultural activities, record keeping and other related issues. | MB | 91.66 % |
| 3 | <ul style="list-style-type: none"> MB in collaboration with TPO social workers have selected and support 59 families (42 SA and 17 IGA) with mental health problems in Chamkar Leu district of Kampong Cham province. From Jan to May 2022, LC will continue to select and support the remaining 6 more families to reach the target of 65 (100%). | MB & TPO | 95.83 % |
| 4 | <ul style="list-style-type: none"> 429 beneficiaries (planned 155) identified, provided grant, and supported by new SHG to start up or enhance small businesses or farm activities | | >100 % |
| 5 | <ul style="list-style-type: none"> Project staff provided follow up and coaching to 274 families (old and new) who run IGA activities (planned 155) | MODE & MB | >100 % |

| | |
|---|-------|
| Overall completion rate of planned activities to achieve R3 | 97.5% |
|---|-------|

Result 4: Improve environmental protection and climate changes awareness and resilience

| No | Activities | Partner of execution | Rate of realization |
|--|--|----------------------|---------------------|
| 1 | <ul style="list-style-type: none"> ▪ Using EIT tool, MODE and MB has conducted the questions related to: (1) the effects of the environment on the producer's activity; (2) the effects of the producer's activity on the environment; (3) the producer's willingness to commit for the environment; (3) His/her capacities and needs to commit. They also ask about the effects of climate change, how it affect to their activities and its benefits. ▪ MB also provided training on sustainable agriculture techniques including climate resilient agriculture techniques and main streaming the environment protection and applied climate resilient agriculture technique to SA members. For example, the project introduced simple techniques such as mulches, drop irrigation system, compost making including liquid compost, botanical pesticide, keeping home clean, using climate resilient seeds, vaccination, keep household waste and separation for composting. | MODE & MB | 100 % |
| 2 | <ul style="list-style-type: none"> ▪ The project stakeholders have put in place measures to mitigate environmental impacts: ▪ Based on the result in Step 2, In total 61 commitments were made among 47 producers, ▪ 51 out of 61 commitments were put into practiced (Step3). | MODE and MB | 100 % |
| 3 | <ul style="list-style-type: none"> ▪ Facilitate target households to develop disposal pit system and properly discard waste (planned 35) and achieved 35. | MB | 100 % |
| 4 | <ul style="list-style-type: none"> ▪ Trained SHGs' leaders on DRR/CC knowledge (Planned 48) and achieved 71 | MB | >100 % |
| 5 | <ul style="list-style-type: none"> ▪ The project has provided additional support (small grant, seeds, and agriculture tools) to 61 people affected by flood and draught after training (planned 50). | MB | >100 % |
| Overall completion rate of planned activities to achieve R4 | | | >100 % |

Result 5: Evidence-based information, studies and operational research on farmer issues are conducted and results are disseminated among famers and key stakeholders in the sector

| No | Activities | Partner of execution | Rate of realization |
|--|---|----------------------|---------------------|
| 1 | LC and partners have completed the capitalization topics above the target indicators (18/6) | LC, MB, Ecoland | >100 % |
| 2 | <p>-LC organized 3 thematic working group meetings (2 in 2018 and 1 in 2019 by Noemie Martin)</p> <p>-LC organized a regional virtual experience sharing workshop about the use of TAPE in Sept 2021, in collaboration with FAO</p> <p>-The study on the impact of smallholder farmers' agricultural practices on water quality in Kampong Thom was completed in 2021, followed by dissemination workshop was organized on 27-28th November 2021 in 4 target villages at Kampong Thom province to share the results with local farmers.</p> <p>-Capitalization workshop was co-organized by LC and Eclasio on 27 Dec 2021, participated by CIRD, FAEC, LC, LC's target farmers, Eclasio, Eclasio's target farmers' beneficiaries, BUAC, TUAC, ALiSEA. (6/8)</p> | LC, Ecoland | 75 % |
| 3 | <p>-LC staff (Amaury and Thida) attended ICERD conference in Feb/March 2020 and presented two research topics.</p> <p>-Ecoland has joined with the Jeunes Equipes Associées a' l'IRD Program (JEA) project to organize scientific workshop on 9th December 2021 to share the results with UCLouvain, LC Cambodia, Eclasio, MB, FAEC, ECOLAND, ITC, independent researcher, and other relevant shareholders in RUA, Phnom Penh.</p> <p>- LC also joined a regional virtual experience sharing workshop about the use of TAPE in Sept 2021, organized by FAO. LC presented about the result of virtual experience sharing workshop about the use of TAPE in Sept 2021 among the Cambodian participants.</p> | | >100 % |
| Overall completion rate of planned activities to achieve R5 | | 91.7 % | |

Annex 9. Training Courses and Topics Provided to FES Project's Beneficiaries

| No. | Training Course | Specific Topics |
|-----|-------------------------|--|
| 1 | Sustainable Agriculture | Garden management |
| | | Crop rotation |
| | | Mixed cropping |
| | | The use of straw to cover crops |
| | | The use of plastic mulch |
| | | Use of natural fertilizers (compost / manure) |
| | | The use of repellent crops |
| | | The use of botanical pesticide |
| | | Crop production in net house |
| | | Water saving irrigation techniques |
| | | Crop protection (IPM) |
| 2 | Integrated Farming | Seeds and crops selection for vegetables, fruits, and multipurpose trees |
| | | Vegetable production |
| | | Fruit and multipurpose tree production |
| | | Division of cultivated areas |
| | | Cultivation plans |
| | | Gardening management |
| | | Preparing irrigation system |
| | | Construction of compost cage and preparation of compost |
| | | Livestock husbandry |
| | | Fish and other aquatic animal farming |
| 3 | Vegetable Production | Organization of garden's surrounding fence |
| | | Soil preparation |
| | | Seeds selection |
| | | Nursery preparation |
| | | Planting |

| No. | Training Course | Specific Topics |
|-----|--------------------|---|
| | | Fertilizer application Pest management Crops nursery The use of natural pesticides Harvesting |
| 4 | Chicken Production | Coop construction Separation of chicks from hens Chick coop construction Chicken Breed selection Chicken feed preparation Chick feed preparation Vaccination Cage hygienic practices Chicken Hatchery |

Annex 10. Performance of Upscale Project

| | Baseline/ Before the Project | Target | Endline | Acomp. | Remarks |
|--|------------------------------------|------------------|--|---------------|---|
| Achievement of SO1 Indicators (Small-Scale Family farmers and Their Family Members Strengthen Their Capacities to Achieve Food Sovereignty, to Defend Their Interests to Generate Pro-Poor Growth | | | | 73.5% | |
| <ul style="list-style-type: none"> Income of the targeted farmers' family increases more than the average income of similar population in the framework of the program | \$149/month | 25% | \$206/month | 38.3% | Below the Target |
| <ul style="list-style-type: none"> Percentage increase of women and youth among FAEC operational actors (%) (women; youth) | Youth (AE) 2; Youth (SEED): 0 | Women: 50% | Youths: 40% | 80.0% | Exceeded the Target |
| | Women (AE): 9 Women (SEED): 21 | Youth: 40 % | Women: 55% | 137.5% | |
| | Average | 45.0% | 47.5% | 108.8% | |
| SO1 R1 | | | | 130.7% | |
| <ul style="list-style-type: none"> Amount of family farmers having access to on-farm small irrigation system | 10 | 25 | 30 families benefited | 120.0% | Exceeded the Target The families connected to irrigation in the endline: 41.9% |
| <ul style="list-style-type: none"> The amount of AE techniques adopted by targeted family farmers increases | 188 HHS | 70% | 41.5% (endline)/ 235% increase | 235.0% | Exceeded the Target Adopters before the project: 12.4%; adopters in the endline: 41.5% |
| <ul style="list-style-type: none"> Percentage of production' quantity increases (compared to baseline) for rice, rice seed, chicken, vegetables | paddy rice: 4.16 t/Ha. | 30% (paddy rice) | paddy rice: 4.62 t/ha (11.1% increase) | 37.0% | Below the Target |

| | Baseline/ Before the Project | Target | Endline | Acomp. | Remarks |
|--|------------------------------------|---------------------|---|--------|--|
| | rice seed: 4.35 t/ha | 200% (rice seed) | rice seeds: 5.21 t/ha (86% increase) | 43.0% | Below the Target |
| | chicken: 49.43 kilos/HH | 100% (chicken) | chicken: 50.61 k/HH (2.39% increase) | 2.4% | Below the Target |
| | vegetables: 2.89 t/Ha. | 100% (vegetable) | vegetable s: 21.42 t/ha (66.18% increase) | 66.2% | Below the Target |
| SO1 R2 indicators | | | | 255.0% | |
| <ul style="list-style-type: none"> % of increase of quantities of products sold collectively by agriculture cooperatives (compared to the baseline) | 45 tons | 40% | 210 tons of fertilizer supplied to ACs under FAEC facilitation[1] | 410.0% | Exceeded the Target This 410% compared to the baseline |
| <ul style="list-style-type: none"> Number of cooperative scoring over 80/100 on SCM grid | 13 | 20 | 20 | 100.0% | Met the Target Even though, the program was no longer supported since 2020 but FAEC provided capacity building through coaching, training and self-assessment through the FAEC member meeting in 2021 |
| SO1 R3 indicators | | | | 184.2% | |
| <ul style="list-style-type: none"> Cumulative amount of ACs getting access to finance for AC collective commercial activities | 0 | 20 | 28 | 195.0% | Exceeded the Target |
| <ul style="list-style-type: none"> % of AC capital increases during the program | \$5,000 (average) | 30% | 52% | 173.3% | Exceeded the Target |

| | Baseline/ Before the Project | Target | Endline | Acomp. | Remarks |
|---|------------------------------------|--------------------------------|--|---------------|---|
| (compared to the baseline) | | | | | |
| SO1 R4 indicators | | | | 149.0% | |
| <ul style="list-style-type: none"> Amount of qualified Service Providers of FAEC /FCFD trained and are operational (men/women/youth) | 24 (20 men/5 women/1 youth) | 55 (35 men/20 women/10 youths) | 138: 83 men, 55 women and 41 young men | 250.9% | Exceeded the Target |
| <ul style="list-style-type: none"> Amount of FAEC /FCFD annual services delivered to FOs and individual members | 50 | 150 | 150 | 100.0% | Met the Target |
| <ul style="list-style-type: none"> Increased percentage of FAEC / FCFD AC members | FAEC: 34; FCFD: 22 | 50% | 48% | 96.0% | Below the Target |
| SO1 R5 indicators | | | | 165.0% | |
| <ul style="list-style-type: none"> Cumulative number of studies published during the program | 0 | 10 | 13 | 130.0% | Exceeded the Target |
| <ul style="list-style-type: none"> Cumulative number of collaboration with other actors on exchanges of experiences and capitalization of knowledge processes developed during the program | 0 | 10 | 20 | 200.0% | Exceeded the Target |
| Overall Performance | | | | 159.6% | No. of indicators that met or exceeded the target: 11 No. of indicators that are below the target: 6 Overall Performance: 64.7% (11/17) |

Annex 11. Performance of FES Project

| | Baseline | Target | Endline | Acomp | Remarks |
|---|---|--------|--|---------|---------------------|
| SO2 indicators | | | | 82.8% | |
| <ul style="list-style-type: none"> Households having enough food to eat all year around | | 463 | 97.40% | 97.4% | Below the target |
| <ul style="list-style-type: none"> Increase of women beneficiaries' income above the average level | 0 | 20% | Average Change of Female Income: 10.2%; Farm: 51.7%; Non-Farm: 2.3% | 51.0% | Below the target |
| <ul style="list-style-type: none"> Number of new registered Agricultural Cooperatives (ACs) in the target areas | 0 | 5 | 5 (2 new) | 100.0 % | Met the Target |
| SO2 Result 1: The institutional strengthening of local partners and SHGs allows improving their technical capacity in relation to supporting small-scale farmers and their management capacity ensuring their sustainability | | | | 114.3 % | Exceeded the Target |
| <ul style="list-style-type: none"> R1.1: Increased percentage of partner capacity rate (assessed by using organizational capacity building assessment tool) | The overall capacity building index score is 87% (MB's organization assessment in 2019) | 87% | 87% | 100.0 % | Met the Target |
| <ul style="list-style-type: none"> R1.2: Number of short studies or assessments | 0 | 8 | 8 | 100.0 % | Met the Target |
| <ul style="list-style-type: none"> R1.3: Number of SHGs leaders trained in finance, management and members needs assessment | 6 SHG leaders were trained by MODE in 2017 | 48 | 24 SHGs have been established; 79 SHG leaders trained | 214.6 % | Exceeded the Target |

| | Baseline | Target | Endline | Acomp | Remarks |
|--|--------------------|--------|------------------------------|---------|---------------------|
| <ul style="list-style-type: none"> R1.4: Gradual formation of SHGs, its functioning until becoming eventually an emergent farmer association (a short video produced annually with the end product at the end of project) | 0 | | 1 Video was produced (Draft) | 100.0 % | Met the Target |
| <ul style="list-style-type: none"> R1.5: Number of water points and wells renovated and maintained | 0 | | 40 (23new) | 100.0 % | Met the Target |
| <ul style="list-style-type: none"> R1.6: Number of new water points and/or wells built | 0 | | 11 (1new) | 100.0 % | Met the Target |
| <ul style="list-style-type: none"> R1.7: Number of beneficiaries who received quality seeds and agricultural tools | | | 289 | 100.0 % | Met the Target |
| <ul style="list-style-type: none"> R1.8: Project yearly reflection workshop organized by MB, follow by stakeholders meeting | 1 per year | | 1 in 6 communes | 100.0 % | Met the Target |
| SO2 Result 2: SHG's members that applied a sustainable agricultural approach, improved their level of organization and increased their food production | | | | 89.1% | Below the Target |
| <ul style="list-style-type: none"> R2.1.: Target households practice Sustainable Agriculture farming system (SA) for at least 3 activities (85% of total) | 831 in 2016 report | 255 | 289 farmers practicing SA | 113.3 % | Exceeded the Target |

| | Baseline | Target | Endline | Acomp | Remarks |
|--|----------|--|--|---------|---------------------|
| <ul style="list-style-type: none"> R2.2: Number of beneficiaries who manage to increase their yield of rice, vegetables, and chicken[1] | | Rice: 60% of beneficiaries increase their yield by +20%; Vegetables: 75% of beneficiaries increase their yield by +30%; Chicken: 70% of beneficiaries increase their yield by +30% | Rice: 47.2%; Vegetables: 57.9%; Chicken: 87.5% | 94.0% | Below the target |
| <ul style="list-style-type: none"> R2.3: Number of SHGs that decided to become Farmer Association (FA) | 0 | 8 | 5 | 62.5% | Below the target |
| <ul style="list-style-type: none"> R 2.4: New Model farmers selected and trained | 0 | | 26 | 100.0 % | Met the Target |
| <ul style="list-style-type: none"> R 2.5: SHGs/emerging FOs established, trained, and supported on management, marketing, and assessment of the beneficiaries to strengthen their overall group's performance | 0 | | 24 | 100.0 % | Met the Target |
| SO2 R3 Indicators | | | | 108.7 % | |
| <ul style="list-style-type: none"> R3.1: Number of beneficiaries who manage correctly their IGAs and reached over 50 USD profit per month (60% of total) | | 60% | 54% | 90.0% | Below the target |
| <ul style="list-style-type: none"> R3.2: Number of SHGs actively working (new) | 12 | 15 | 23 out of 24 are actively working | 153.3 % | Exceeded the Target |
| <ul style="list-style-type: none"> R3.3: Number of beneficiary households referred by health partners of LC and the RH or HC to get benefit from MB's FES project | 0 | 65 | 65 | 100.0 % | Met the Target |

| | Baseline | Target | Endline | Acomp | Remarks |
|---|----------|--|---|---------|---------------------|
| <ul style="list-style-type: none"> R3.4: Number of beneficiaries identified, provided grant, and supported by new SHG to start up or enhance small businesses or farm activities | 0 | | 429 | 100.0 % | Met the Target |
| <ul style="list-style-type: none"> R3.5: Number of IGA beneficiaries coached and followed up | 0 | | 274 (160 MODE+114 MB) | 100.0 % | Met the Target |
| SO2 R4 indicators | | | | 100.0 % | |
| <ul style="list-style-type: none"> R4.1: Number of SHG members who have developed a climate change mitigation plan | 0 | 47 | 65 | 138.3 | Exceeded the Target |
| <ul style="list-style-type: none"> R4.2: The project stakeholders have put in place measures to mitigate environmental impacts | 0 | Most of identified measures were implemented | 61 commitments were made among 47 beneficiaries /producers that were interviewed, using the EIT tool; 51 of 61 commitments were implemented | 100.0 % | Met the Target |
| <ul style="list-style-type: none"> R4.3: Number of families who have a disposal pit system and properly discard wastes at community level | 0 | 35 | 35 | 100.0 % | Met the Target |
| <ul style="list-style-type: none"> R4.4: SHGs/ emerging FOs leaders received knowledge on DRR/CC and able to disseminate to their community people | 0 | | 71 | 100.0 % | Met the Target |

| | Baseline | Target | Endline | Acomp | Remarks |
|--|----------|--------|---|---------|--|
| <ul style="list-style-type: none"> R4.5: Number of beneficiaries affected by flood or drought who received additional support (small grant, seeds, and agriculture tools) | 0 | | 61 | 100.0 % | Met the Target |
| SO2 R5 indicators | | | | 176.7 % | |
| <ul style="list-style-type: none"> R5.1: Number of capitalization topics carried out | 0 | 6 | 18 capitalization topics were carried out | 300.0 % | Exceeded the Target |
| <ul style="list-style-type: none"> R5.2: Number of thematic working groups organized | 0 | 10 | 8 | 80.0% | Below the target |
| <ul style="list-style-type: none"> R5.3: Number of National Seminar organized (in collaboration with Eclosio) | 0 | 2 | 3 | 150.0 % | Exceeded the Target |
| Overall Performance | | | | 111.9 % | <p>No. of indicators that met or exceeded the target: 24</p> <p>No. of indicators that are below the target: 7</p> <p>Overall Performance: 77.4% (24/31)</p> |

Annex 12. **Financial Report per Partners for 5Y in EUR**

I. UpScale Project

Finance Report per Partners for 5Y in EUR

| Entities and Components and Line Items | Budget | Spent | % from Total | Fund Utilization |
|---|----------------|----------------|---------------------|-------------------------|
| 1.0 FAEC INTERVENTIONS | 135,239 | 94,143 | 7.5% | 69.6% |
| ▪ A10: Institutional Strengthening | 17,137 | 13,562 | 1.1% | 79.1% |
| ▪ A30: Access to Finance/Market | 21,171 | 15,204 | 1.2% | 71.8% |
| ▪ A40: FO capacity building | 41,702 | 19,075 | 1.5% | 45.7% |
| ▪ A50: Production Value Chain | 946 | 416 | 0.0% | 44.0% |
| ▪ A60: Support Women and Youth | 28,771 | 21,581 | 1.7% | 75.0% |
| ▪ A70: Advocacy network | 25,512 | 24,305 | 1.9% | 95.3% |
| 2.0 FERTILIZERS (FAEC) | 8,047 | 5,101 | 0.4% | 63.4% |
| ▪ D10: Marketing Chemical Fertilizer | 8,047 | 5,101 | 0.4% | 63.4% |
| 3.0 RICE SEEDS (CIRD) | 127,869 | 98,939 | 7.9% | 77.4% |
| ▪ B20: Improve Rice Seed quality | 43,861 | 37,453 | 3.0% | 85.4% |
| ▪ B30: Improve marketing Rice Seed | 42,393 | 32,304 | 2.6% | 76.2% |
| ▪ B40: Participatory Guaranty System (PGS) | 18,285 | 14,638 | 1.2% | 80.1% |
| ▪ B50: Rice Seed Promotion | 20,752 | 13,114 | 1.0% | 63.2% |
| ▪ B60: Paddy rice | 2,578 | 1,431 | 0.1% | 55.5% |
| 4.0 IRRIGATION (ISC) | 82,323 | 58,105 | 4.7% | 70.6% |
| ▪ C10: Irrigation system | 82,323 | 58,105 | 4.7% | 70.6% |
| 5.0 AE OPERATION | 142,135 | 122,198 | 9.8% | 86.0% |
| ▪ E10: AE activities at Takeo | 111,651 | 105,705 | 8.5% | 94.7% |

| Entities and Components and Line Items | Budget | Spent | % from Total | Fund Utilization |
|--|------------------|------------------|--------------|------------------|
| ▪ E30: AE activities at Kampong Thom | 19,920 | 13,192 | 1.1% | 66.2% |
| ▪ E38: Capitalization, network on AE | 10,564 | 3,301 | 0.3% | 31.3% |
| 6.0 MANAGEMENT | 850,158 | 870,881 | 69.7% | 102.4% |
| 6.1 Eclasio HQ | | | | |
| ▪ G10: HQ Operation (mission to KHM,...) | 225,785 | 275,274 | 22.0% | 121.9% |
| 6.2 Local | | | | |
| ▪ G30: Local Operation | 73,969 | 60,277 | 4.8% | 81.5% |
| 6.3 Eclasio KHM: Management | | | | |
| ▪ G41-43: Investment/Running/HR costs | 262,206 | 226,877 | 18.2% | 86.5% |
| 6.4 CIRD | | | | |
| ▪ C21-23: Investment/Running/HR costs | 120,528 | 116,034 | 9.3% | 96.3% |
| 6.5 FAEC | | | | |
| ▪ D31-33: Investment/ Running/ HR costs | 119,499 | 146,063 | 11.7% | 122.2% |
| 6.6 AE | | | | |
| ▪ E40: Investment/Running/HR costs | 48,171 | 46,356 | 3.7% | 96.2% |
| Total budget vs spending 5Y | 1,345,771 | 1,249,368 | | 92.8% |
| Budget Approved 5Y | 1,347,241 | | | |

II. FES Preojct

Financial Report per Partner for 5Y in EUR

| Code Description | Budget | Expenses | % from Total | Fund Utilization | Beneficiaries (Actual) |
|------------------|---------------|---------------|--------------|------------------|--|
| FAEC | | | | | |
| Functionnement | 56,763 | 57,891 | 19.0% | 102.0% | -Number of AC = 5 -AC Member = 49+178+40+53+68 = 388 -Master Farmer Trainer = 45 |
| Personel | 8,981 | 22,391 | 7.3% | 249.3% | |
| MB | 65,744 | 80,282 | | | |

| Code Description | Budget | Expenses | % from Total | Fund Utilization | Beneficiaries (Actual) |
|-------------------------|----------------|-----------------|---------------------|-------------------------|---|
| Investment | 26,960 | 20,980 | 6.9% | 77.8% | -Conduct dissemination on SHG concept =356 -Conduct meeting on SHG by-law establishment = 223 -Provide training on SHG management and bookkeeping to SHG executives =299 -Provide training on SA technique to SHG member =345 -Conduct SHG reflection workshop =190 -Provide training on DRR =33 -Provide training on micro-business development plan to IGA member =17 |
| Functionnement | 93,137 | 87,184 | 28.6% | 93.6% | |
| Personel | 124,385 | 116,482 | 38.2% | 93.6% | |
| | 244,482 | 224,646 | | | |
| Grand Total | 310,226 | 304,929 | | 98.3% | |