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1 Acknowledgments

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2 Acronyms

AMAEP	=	ACIAR Mindanao Agricultural Extension Project
AO	=	Agricultural Office
ARMM	=	Autonomous Region in Muslim Mindanao
BDC	=	Barangay Development Council
BLGU	=	Barangay Local Government Unit
CENRO	=	City Environment and Natural Resources Office
CAO	=	City Agricultural Office
CBCS	=	Consortium of Bangsamoro Civil Society
CSO	=	Civil Society Organisation
DA	=	Department of Agriculture
DA-ATI	=	Department of Agriculture-Agricultural Training Institute
DFAT	=	Department of Foreign Affairs and Trade (Australian government)
DOST	=	Department of Science and Technology
DSWD	=	Department Social Welfare and Development
ECs	=	Evacuation Centres
ENRO	=	Environment and Natural Resources Office
FFS	=	Farmer Field School
GAD	=	Gender and Development
IDP	=	Internally-Displaced Person
IPMR	=	Indigenous Peoples Mandatory Representative
IP	=	Indigenous People
IPRA	=	Indigenous Peoples Rights Act
LGU	=	Local Government Unit
MAO	=	Municipal Agricultural Office
MinDA	=	Mindanao Development Authority
MILF	=	Moro Islamic Liberation Front
MILG	=	Ministry of Interior and Local Government
MNLF	=	Moro National Liberation Front
MRDP	=	Mindanao Rural Development Program
MSWDO	=	Municipal Social Welfare and Development Office
NEDA	=	National Economic and Development Authority
STII	=	Sibugay Technical Institute Incorporated
SB	=	Sangguniang Bayan (local legislative branch of municipal council)
PCAARRD	=	Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development
PULL	=	PCAARRD-UP Mindanao-Landcare-LIFE program

3 Executive summary

The ACIAR Mindanao Agriculture Extension Project (AMAEP) supported the development and testing of a new extension praxis for conflict vulnerable provinces of Mindanao. It also supported the mainstreaming (scaling up, out and deep) of the model known as Livelihood Improvement through Facilitated Extension (LIFE) within a multi-institutional environment.

The LIFE model that resulted from this project recognized the need for farmer access to technical innovations; improvement in social capital; and building effective partnerships with extension agents and institutions. The refinement of the extension model focused on two levels 1. farm and 2. institutional.

The research team considered that it was important to pay particular attention to people and partnerships. This was based on the experience from both Australia and the Philippines, where strengthening social capital has been a major factor in the creation of new and innovative solutions to agricultural issues.

Evidence of the success of the LIFE Model includes increased farmer incomes of up to 80%; greatly improved trust and cooperation between previously disparate Muslim, Christian and IP (Indigenous Peoples) communities; a positive correlation between social capital and economic improvement; and widespread interest in and adoption of the Model by barangay and municipal local government units. In almost all pilot sites, the improvements have occurred within only six to twelve months from initial engagement.

A major output from AMAEP has been the LIFE Package. The package consists of three components: 1) a reference/guide book, 2) video library and 3) training manual. This report draws extensively from the book *The Facts of LIFE: An introduction to a new model of agricultural extension for conflict-vulnerable areas of the Philippines* (Vock, 2021) which translates the findings of this study into a reference guide intended for a wide audience.

The appropriateness and universal appeal of the LIFE model attracted the Department of Science and Technology – Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (DOST-PCAARRD) to undertake scaling up and out of the model among its consortia in Western and Central Mindanao. The project was known as the PULL Project (PCAARRD-UPMindanao- Landcare-LIFE) and further tested LIFE in six additional sites. PCAARRD is now considering a PULL Phase Two for commencement in 2022-23.

The widespread interest in LIFE has also resulted in the Australian government Department of Foreign Affairs and Trade (DFAT) launching a separate pilot study that builds on the LIFE model. Both PCAARRD and DFAT projects leverage many of the partnerships built during AMAEP and operate in conflict-vulnerable areas but with a slightly different geographical focus.

Finally, the LIFE model will now be tested through a tripartite project involving Fiji, the Philippines and Australian partners. This ACIAR funded project SSS-2019-140 *Landcare – an agricultural extension and community development model at district and national scale in Fiji*, will explore whether agricultural extension models linked to community development can be adapted from one country context to another for improved climate change resilience, management of natural resources, agricultural productivity and gender equality.

4 Background

Mindanao, the Philippines second largest island, is widely regarded as the nation's food bowl, producing a wide range of grain, fruit, vegetables and specialty crops. Mindanao's combination of warm temperatures, abundant rainfall, large areas of fertile soil and innovative, hard-working farmers make it potentially one of the richest agricultural areas in south-east Asia.

However, in many areas of Mindanao, the agricultural potential had been significantly reduced by community-level conflicts of overlapping religious, political and cultural origins. Studies on rural communities had shown that the economic and social impacts of conflict included disruption of farming activities, reduced investment in farm infrastructure, a breakdown of the normal social structures within communities, and a decrease in the provision of agricultural extension services by government and other institutions.

From previous research conducted in less conflict-vulnerable communities in Mindanao by ACIAR and other institutions, it was shown that certain types of community-based agricultural extension approaches could rapidly improve the livelihoods of farming households. The question was could these approaches be redesigned to be effective in conflict-vulnerable areas?

A key influencing factor to answering this question was the small pilot program conducted in a conflict area by the previous ACIAR 'Landcare' project (ASEM/2002/051) in Maalisbong, Palimbang, Sultan Kudarat (Region 12). This program, initiated at the request of a reformed Moro Islamic Liberation Front (MILF) commander, consisted of a farmer livelihood-improvement extension program involving community consultation, farmer-based technical training, cross-visits to other Landcare sites, development of a communal vegetable garden as a learning site and strengthening ties with the local Peoples Organisation and other community development agencies.

An important part of the process was building trust and confidence with the Muslim, Christian and IP (Indigenous People) community leaders, who were cautious about engaging with 'outsiders', given the history of conflict. The relatively short and inexpensive pilot program (2007 to 2009) produced excellent results including crop diversification, adoption of new technologies, improvements to income, and improved knowledge and awareness from the cross-visits.

Significantly, both the barangay (village) captain and the military reported that the community appeared more peaceful, and the process left a very positive impression on the Muslim development agency (Bangsamoro Development Agency – BDA) and the Maalisbong Local Government Unit (LGU). In summary, the experience demonstrated the promise of facilitated community-based extension methods to achieving improved livelihoods in isolated conflict-vulnerable communities.

As a consequence of the positive results generated from the Maalsibong pilot project, a team of Australian and Filipino research and extension specialists worked together to design then implement a project to develop an effective extension model, with a livelihood improvement focus, set within conflict vulnerable communities.

Commencing in 2013 the AMAEP team reviewed and analysed existing agricultural extension approaches and from this developed LIFE. From 2014 to 2021, the team rigorously tested the LIFE Model through a process of action research in a total of twenty conflict-vulnerable pilot communities in the western Mindanao provinces of Zamboanga Sibugay, Maguindanao and South Cotabato. The objective was to evaluate the Model for

its ability to rapidly improve farmer livelihoods (primarily economic and social livelihoods) and for its potential to be easily adopted by extension agencies operating in the pilot sites.

AMAEP used a three-track strategy: 1. improving farmer access to technical innovations, 2. building community social capital and 3. collaborating closely with local institutional partners which were implemented simultaneously. The project researchers believed that the focus on the people and partnerships would be key in ensuring its success, thus an emphasis on social capital building.

The research questions addressed in the study were:

1. How does conflict affect the delivery of agricultural extension and subsequently the agricultural livelihoods of farming communities in conflict areas?
2. How can improved extension methods be most appropriately applied in conflict areas?
3. What agricultural livelihood improvements can be achieved through improved extension methods in conflict areas?
4. How can improved extension methods be best promulgated throughout the areas affected by conflict

The improved extension model centred around encouraging farmers to define preferred livelihood activities relevant to their circumstances, with technological and other support coming from ‘advanced’ farmers, Landcare groups within and outside the conflict areas, as well as from appropriate technical agencies.

Particular attention was paid to identifying how livelihood activities were relevant to women and how these activities could be best tailored to their needs to enhance ownership and participation.

Throughout the process, technical, economic and social changes at the farmer level, and attitudinal and practice change at the institutional (extension agency) level, was measured using a number of analysis tools developed by multidisciplinary research team.

The project team combined Philippine research expertise (from the Landcare Foundation of the Philippines Inc (LFPI) – extension research; University of the Philippines Los Banos (UPLBFI) – economic/livelihood development research; and University of the Philippines Mindanao (UPMFI) – social science research) with complementary research expertise from Australia across the same three disciplines.

5 Objectives

Project objectives:

1 Determine the livelihood impacts of conflict on agricultural communities and extension services in case study conflict-affected areas.
2 Implement a pilot program of improved extension and livelihood innovations, making use of principles and methods largely derived from previous ACIAR projects.
3 Analyse the impacts of the pilot extension and livelihood innovation program.
4 Engage more broadly with relevant conflict area extension and other agencies outside of the case study areas to communicate project methodologies and findings.

Table 1 Objectives and activities

OBJECTIVE	ACTIVITY
Objective 1: To determine the livelihood impacts of conflict on agricultural communities and extension services in case study conflict-affected areas	1.1 Present project to key stakeholders and develop an effective ongoing partnership arrangement
	1.2. Understand how to best recruit and train field staff (community facilitators) who have the empathy and trust of the community
	1.3 Establish a model for enabling field staff to operate effectively and safely, including inputs from research support staff and management of security
	1.4 Develop a benchmark or baseline of existing agricultural livelihood activities, social capital and extension practices within case study communities
Objective 2. To implement a pilot program of improved extension and livelihood innovations, making use of principles and methods largely derived from previous ACIAR projects	2.1 Use improved extension principles and methods to develop and implement a program of appropriate livelihood innovations. Work with farmers and extension agencies to identify the value and role of social capital in relation to agricultural extension and livelihood improvement
	2.2 Involve local extension and other relevant agencies in case study areas in the pilot program, provide training and progressively build extension capacity
	2.3 Hand over the major responsibility for ongoing management of programs in existing case study sites
Objective 3. To analyse the impacts of the pilot extension and livelihood innovation program	3.1 Develop appropriate metrics and measure and document outcomes (changes in economic livelihoods, farmer capacity to apply technologies, social capital development including trust/trustworthiness, empowerment of women, extension systems) and analyse against the baseline findings identified in Objective 1. Value benefits and costs of social capital.
	3.2 Document a set of principles for improving agricultural extension in conflict areas of Mindanao
Objective 4. Engage more broadly with relevant conflict area extension and other agencies outside of the case study areas to communicate project methodologies and findings	4.1 Develop a project advisory group, involving representatives of relevant extension and development agencies, to formalise annual input into the project
	4.2 Implement a program of communication with local chief executives, policy makers and the MILF and ARMM leadership to keep them informed of progress
	4.3 As results emerge, promote the improved extension methods and approaches to other conflict area extension agencies
	4.4 Work with PCAARRD, local chief executives, policy makers and the MILF and ARMM leadership to develop an action plan for implementation of the 'model' for improved agricultural extension in Mindanao conflict zones beyond end of project.

6 Methodology

The research initially involved working with three case study communities in conflict areas of Mindanao to pilot test improved extension methods using the broad research framework of a Participatory Action Research (PAR) process. Within that framework, more disciplinary-oriented research was undertaken in sociology, economics, extension methodology, farming and livestock systems and marketing research.

The improved extension methods were formulated starting with ideas from the Landcare process and other extension innovations that had a proven track record in other areas of Mindanao and elsewhere. The methods included creating a strong level of local farmer and institutional participation, community organising and social capital development, capacity building at both the farmer and LGU level, on-farm technology experimentation and demonstration, cross-visits to other sites, improvement of farmer-to-farmer learning systems, development of farmer facilitators, strengthening of local partnerships and development of farmer-based marketing clusters.

Pilot testing of improved extension methods was undertaken using PAR where progress was subjected to a constant and regular cycle of planning, action, monitoring, evaluation, learning and replanning for the next cycle. Throughout the PAR process, technical, social and economic changes at the farmer level, and attitudinal and practice change at the institutional (extension agency) level, was measured using a number of analytical tools.

Through activities such as meetings, workshops, field trips, cross visits PAR was used in the process of reflection and re-planning by the farmers, AMAEP facilitators, researchers, institutional partners and others. The practise of self-reflective inquiry also provided greater understanding of culture, local context and social relationships.

Although the project plan did not explicitly describe Asset-Based Community Development (ABCD), this methodology greatly influenced the extension approach. ABCD is based on the principle that recognises the strengths, talents and assets of individuals and communities (Mathie & Cunningham 2003). At its core are associations or groups of community members, both formal and informal, that are a source of power and leadership and considered assets of the community (Greene 2000). By focusing on its assets, a community can build on positive aspects, such as local and indigenous knowledge, and then work on developing these assets.

Conversely many traditional forms of extension (i.e. top down technology transfer) have relied on outside experts identifying problems and offering solutions. These traditional approaches inadvertently present a one-sided view that sometimes compromise, rather than contribute to, community capacity building (Mathie & Cunningham 2003).

Using participatory approaches to develop the extension model facilitated local ownership of solutions by stakeholders. Furthermore, the collaborative approach between facilitators, researchers, local communities and project partners produced knowledge that was directly relevant to the stakeholder community.

As the project evolved research, extension and operational roles began to merge as facilitators researched areas of specific interest, farmers trialled technologies through citizen science activities, and researchers from different fields formed teams to produce inter-disciplinary knowledge.

6.1 Monitoring and Evaluation

Designing the project Monitoring and Evaluation plan required multiple considerations including methods, sampling, scale of data collection, frequency and team composition. In addition to reflexively assessing the relationships between inputs, activities/processes, outputs, outcomes and impact M&E findings were used by the project team to identify

challenges and opportunities and unintended effects or impacts. This enable timely interventions during the life of the project.

The main focus was on measuring improvement of livelihoods for participating farmers. This involved consideration of two primary livelihood aspects – economic and social – which are regarded as the highest priorities for disadvantaged communities in conflict-vulnerable areas. We also monitored other livelihood improvements, such as those in the human, environmental and political categories.

A secondary focus was on measuring the effectiveness of the model for local extension institutions – an important factor in ensuring institutional sustainability of the model beyond the end of the project.

The M&E was initially structured a project logic model, activity targets and a description of inputs, outputs and outcomes. While Theory of Change was not explicitly described in AMAEP's original project design, the research strategy did articulate the 'how and why' a given intervention would lead to specific change described. Furthermore, the four main purposes of theory of change – strategic planning, description, monitoring and evaluation and learning – were also described in the project plan.

The Project Logic identified goals (outcomes) and depicted program components so that activities match outcomes. The AMAEP Project Logic set out what the research project would do, and how this would be done through identifying key components to be achieved. See APPENDIX 1 Project Logic.

Action research (a cycle of planning, acting, reflecting and re-planning) was used to regularly review the rollout of the LIFE Model and incrementally improve its performance and implementation. The Monitoring and Evaluation activities evolved to incorporated a learning cycle in keeping with the Action Research that researchers had been purposefully using for continuous improvement see Figure 1 Monitoring, evaluation and learning.

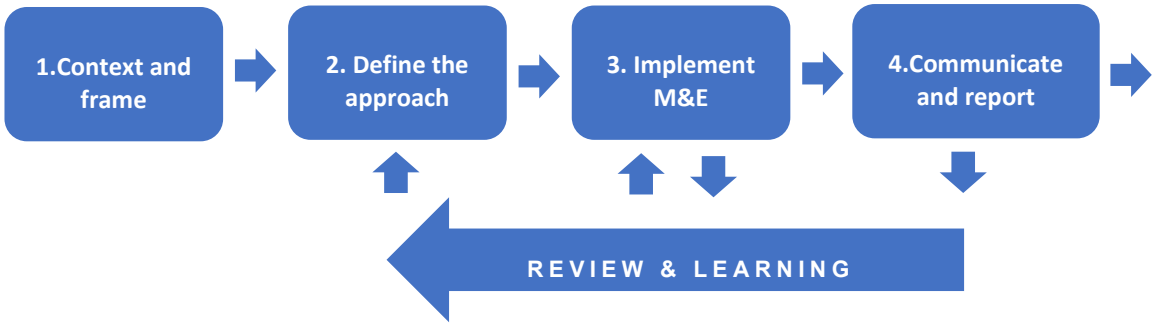

Figure 1 Monitoring, evaluation and learning

A mixed-method approach to data gathering was chosen where quantitative methods provided attributable data i.e. cost benefit analysis and qualitative methods captured empirical data such as documenting change within the cultural, societal and social contexts. This informed the development of appropriate metrics for measuring and evaluating change; selecting and refining indicators; determining data collection protocols and review and reflection activities.

Examples of the metrics and indicators used include:

- The economic dimensions of livelihoods measured by input/output analysis. An example is the Working Paper 29 where qualitative and quantitative measures assessed the impacts of the livelihood intervention (vegetable production) of Salman Farmers Association (SAFA) located in Sitio Ugapok, Barangay Salman, Ampatuan, Maguindanao.

- The technological dimensions of livelihoods were measured by an assessment of changes in farmer knowledge, skills and practices at the field level. The farmer baseline survey covering the three pilot sites at barangays Magdaup; Kauran and Assumption and reported in Working Papers 6,7 and 8.
- Group health indicators were developed and included: leadership; creating leaders within the group (succession planning); participatory decision-making; learning opportunities and skills development; resource mobilization; partnership/linkages/networking; representation of membership, i.e. women-men, minorities; a shared vision and clear goals; a sense of purpose and commitment; conflict management and management of relations within the group and communication with-in the group and outside the group.
- The role of women in conflict vulnerable communities was observed and described over the duration of the project. The baseline survey included questions about the number of women in leadership roles; women's' involvement and the level of involvement in farm activities, off-farm activities, communication, information dissemination and training; and the level of access that women had to resources including land, cash/credit, physical capital, social networks and associations. Researchers also explored and documented the impact of conflict on women, men, youth, aged and minority groups.
- Measuring the costs and benefits of social capital development undertaken using a modified social cost-benefit analysis. In Working Paper 21 a social capital index was derived from households' memberships in local farmer association, the duration in terms of years of their memberships, and number of memberships in local organizations. The data indicated a positive correlation between social capital and household welfare. Households with high social capital have higher consumption expenditure (a proxy for income). This finding supported the project's approach of promoting agricultural extension with a strong social capital element as a livelihood improvement strategy for conflict areas in Mindanao.
- Changes in the overall extension system was measured by project personnel making direct assessment of changes in extension approaches, practices and outputs, including the knowledge, attitudes, skills and aspirations. Working Paper 37 describes the LIFE Model scaling-up activities by six institutional partners and the assessment of change in extension approach. This study used a combination of qualitative and quantitative methods and was conducted over three years. Key informant interviews, observation in the field sites, minutes of meetings, workshops, testimonials on video and working papers served as sources of data for this study.
- To ensure all measurements are credible and properly attributed to project activities, two levels of triangulation were employed by: (a) cross-referencing results from surveys with observations by project personnel and opinions from selected external agents; and (b) cross-referencing results from the perspectives of farmers, extension agencies and members of the Project Advisory Group.

Working Paper 14 presents a synthesis of social capital understanding derived from foundational work undertaken in the project. (See web link: https://sites.google.com/site/improvedextensionproject/publications

6.2 Site selection

During project conceptualization, the implementing partners explored the important issues in site selection and incrementally developed a list of eight criteria to guide the process.

The criteria for site selection were classified under four core headings, as follows:

1. Sites must be within a 'conflict-affected zone':

- classified as such by the Philippines Government;
- where impacts of conflict (such as poverty, reduced access to services, dislocation) are present and obvious;
- relevant to some clear political or development process aimed at reducing the impacts of conflict (for example the Framework Agreement for Bangsamoro between the Philippines Government and the Moro Islamic Liberation Front (MILF).

2. Sites must possess some potential for improvement in agricultural extension methods and associated agricultural livelihoods (at a local level) with:

- potential for improvement within the duration of the four-year project – improvement that it is believed the project can effectively facilitate;
- potential for improvement through the presence of a supportive network of local agencies, and interest by them in adopting improved agricultural extension methods.

3. Potential for geographic expansion (scaling-up) of the improved agricultural extension methods, in particular where:

- impacts of the project at the site will be relevant to the key political agencies (for example, MILF) and preferably visible or easily visited; • impacts of the project at the site are likely to be relevant to other conflict areas and easily scaled up to those areas.

4. Safety/security

- Project staff will be able to operate safely, without significant dislocation, for most, or all, of the duration of the project.

In developing the key criteria, it was agreed that the project would not pre-define which crops or agricultural technologies would be a focus. This averted potential bias towards some sites on the basis of the technological expertise of members of the project team. Other general considerations included

- Three pilot (case study) sites was manageable within project resource availability;
- The project would focus on western and central Mindanao as it appeared to be the most conflict-affected, the most disadvantaged and the most relevant to the Philippine Government's conflict reduction strategy;
- The sites were selected to achieve a spread of diversity across the political, religious, cultural, institutional and agricultural landscapes, as well as potential relevance to scaling-up across the conflict areas;
- Previous or existing agricultural extension improvement projects which the new project could potentially use as a development platform;
- As the project was about improving agricultural extension methods and agricultural livelihoods, sites would be predominantly rural with a high percentage of farming households.

During the consultations, input was also obtained on other potential project sites. This was sought with a view to the future of the project in scaling-up project outputs and outcomes.

6.3 Pilot Case Study Sites

As a result of the consultation process, the three pilot sites selected (see Figure 2 AMAEP Pilot Sites) and confirmed for the initial project research. The sites were: 1. South Cotabato – municipality of Koronadal City – barangays of Assumption and Saravia; 2. Maguindanao – municipality of Ampatuan and 3. Zamboanga Sibugay – municipality of Ipil. Field testing and evaluating the logistics and overall design of LIFE enabled trouble shooting at an early stage which reduced transactional costs and avoided potential delays with expanding the LIFE model.

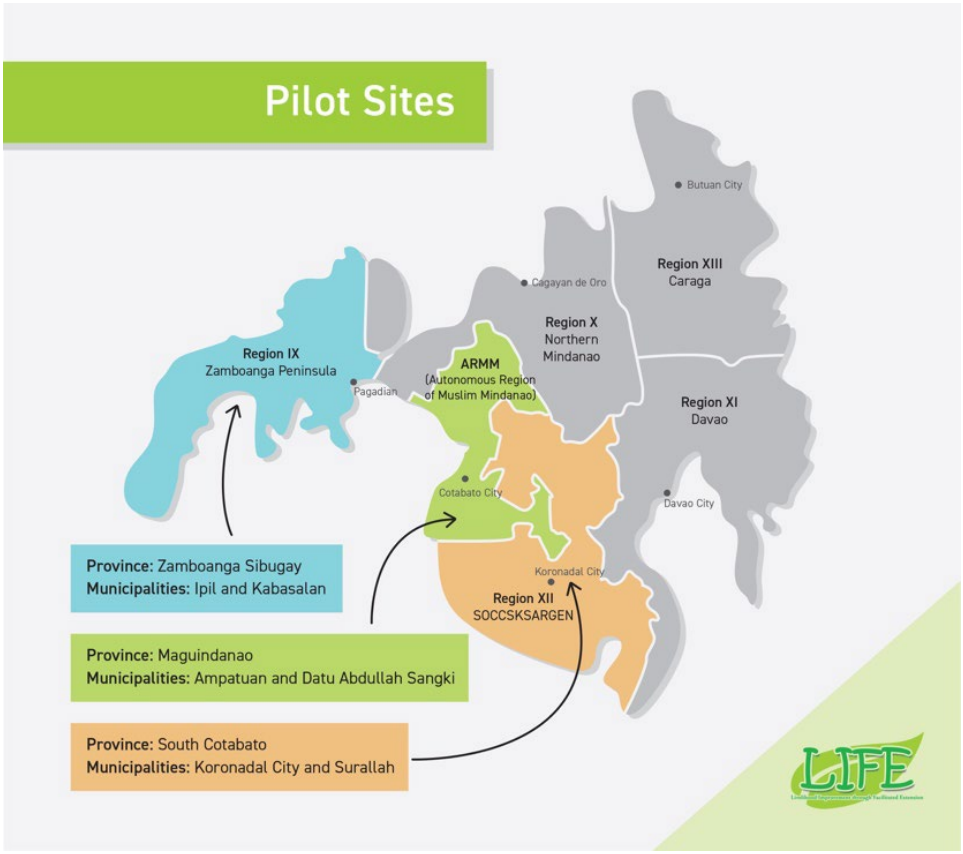

Figure 2 AMAEP Pilot Sites

Each pilot site was serviced by a team of two community facilitators. The rationale and benefits for using two facilitators per site included sharing the workload, increasing the skills base, and improving the security for staff.

During the pilot case study time local extension officers from other programs, e.g. local government agricultural programs, were liaising with the AMAEP facilitators. They were also observing the outcomes LIFE in the field and could see farmer group capacity increase to high functioning levels. This partnership between the AMAEP facilitators and field staff was a natural fit and they jointly worked with farmer groups and communities in the same areas. These relationships strengthened and expanded to include extension staff from other departments e.g. women's health. The LIFE approach could also enhance existing programs and services or those coming on-line. After two iterations of farmer pilot site testing i.e. six sites, the focus shifted to scaling up and out by working closely with those institutional partners who either had staff working alongside AMAEP facilitators or who expressed interest in adopting the model.

6.4 Going to Scale

A going to scale plan was finalised at the September 2016 project team meeting with input from PCAARRD. PCAARRD is mandated by the Philippine Government to develop innovative extension modalities and strengthen alliances with extension stakeholders throughout the Philippines. The meeting resolved a two-part strategy:

1. Facilitate three technology-focused projects in conflict-affected areas of western Mindanao, funded by PCAARRD and involving PCAARRD research consortia as the primary project managers, to test/validate the model as a potentially core new extension modality. Importantly, the projects would be monitored and evaluated using PCAARRD's standard project M&E criteria, which would provide a second validation process to the one that the ACIAR project is currently using;
2. Mentor five agencies stratified across the different classes of conflict area agencies (Government LGUs, Government line agencies, NGOs, academia, non-state agencies) to test the model independently within their own programs. The objective was to widely demonstrate the model's effectiveness across the institutional spectrum and thereby develop a network of LIFE Model 'champions' (advocates) for the future.

The AMAEP team then develop criteria for selecting the institutional partners as follows:

- Relevance of the institution,
- Existing projects/programs,
- Interests to the project,
- Willingness to invest or put in their counterpart (in terms of human resource and support for livelihood), and
- Target impact or value in partnering

In accordance with the criteria, AMAEP chose the City Agriculture Office (CAO) Koronadal City; City Environment and Natural Resources Office (CENRO) Koronadal City; Municipal Social Welfare and Development Office (MSWDO); Sibugay Technical Institute Incorporated (STII) and the Consortium of Bangsamoro Civil Society (CBCS) as the project's institutional partners see Figure 3 AMAEP Expansion sites.

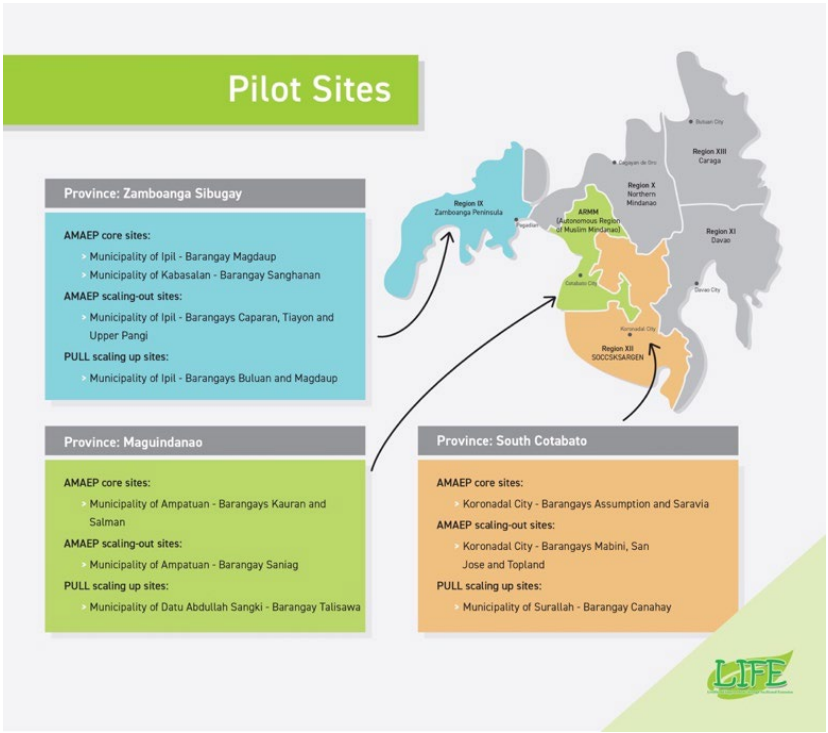

Figure 3 AMAEP Expansion sites

AMAEP also considered other specific factors in choosing the partner institutions. For MSWDO, the focal person showed high interest in the project and there was available Gender and Development (GAD) fund for livelihood. In addition, there were 30 women's groups already organized in Ipil. The project aimed to reinforce an existing partnership with Department of Social Welfare and Development (DSWD).

For STII, the President of the school showed high interest in the project. It was advantageous that the school offers agricultural courses, research, and community extension. In addition, STIl have an available 15 hectares property for agri-ecotourism and research purposes. They also aimed to involve their students in the project since the institution is compassionate on bringing back interest on agriculture among younger generation. In addition, the institution advocates sustainable agriculture and is interested to extend development programs to the community near school learning farm. Furthermore, they envisioned becoming a centre for learning on sustainable agriculture and being a model among academic institutions.

CBCS is one of the most respected civil society organisations in Maguindanao especially by the Ministry of Interior and Local Government (MILG). Ensuring the acceptance of the AMAEP project by the community and security of the staff and was t one of the considerations for partnering with CBCS.

The PCAARRD-UP Mindanao-Landcare-LIFE (PULL) Program was an offshoot of the relationship built between AMAEP and PCAARRD as the monitoring agency on ACIAR projects. Through their monitoring, PCAARRD officers were able to see the results and outcomes of the LIFE model and the potential of its implementation on a wider scale. For the PULL program three sites were proposed:

1. Surallah in South Cotabato;
2. Datu Abdullah Sangki in Maguindanao and
3. Ipil in Zamboanga Sibugay.

The engagement with the five agencies commenced in November 2016 and involved initial consultation with agency managers, clarification of partnership details and counterpart resources.

6.5 Recruit, train and deploy community facilitators

As a primary project partner, LFPI managed all field staff (community facilitators) under the oversight of the LFPI Project Manager. The deployment of two staff at each site increased the research skills base available, and improved the security for staff in the field. The recruitment and deployment process included orientation training and the development of the individual, needs-based, ongoing training plan for each community facilitator.

The community facilitators coordinated most of the on-ground extension-oriented activities as well as oversighting and participating in the research fieldwork. This meant that the University of the Philippines Mindanao (UPMin), University of the Philippines Los Banos (UPLB), and RMIT researchers and technical services were coordinated through the community facilitators.

This arrangement also meant that the management of security was coordinated, in addition to preventing the project presenting a 'disjointed' front to farmers – an important issue in the ongoing development of trust and empathy with communities in conflict areas. In this context, research staff from UPMin and UPLB, as well as technical support staff, interacted with the community facilitators on-site where necessary and appropriate, and otherwise at a safe location nearby. Face-to-face interaction with the Australian research team occurred during intensive review workshops held at safe locations such as Davao, Manila and Bohol.

7 Achievements against activities and outputs/milestones

Objective 1: To determine the livelihood impacts of conflict on agricultural communities and extension services in case study conflict-affected areas

no.	activity	outputs/ milestones	completion date	comments
1.1	Present project to key stakeholders and develop an effective ongoing partnership arrangement	Dialogue with stakeholders about conflict, agricultural livelihoods and agricultural extension systems	Yr1 m2	A comprehensive round of consultation and engagement occurred with key stakeholders. This was led by LFPI as the primary implementing partner. Excellent buy-in occurred as a result of the consultation process with key ARMM officers, MILF, MNLF and the Consortium of Bangsamoro Civil Society Organizations (CBCS). This ensured AMAEPs entry/access into the political, civil society and geographical core of the conflict at the Mindanao sites. Moreover, as partnerships strengthened opportunities arose such as co-participation in local, regional and national programs and activities.
1.2	Understand how to best recruit and train field staff (community facilitators) who have the empathy and trust of the community	Trusted and trained facilitators in place as the main face to face contact with case study communities	Yr1 m2	The recruitment and deployment of the field staff was managed by LFPI under the oversight of the LFPI Project Manager. The deployment of two staff at each site increased the research skills base available, and improved the security for staff in the field. The recruitment and deployment process included orientation training and a needs-based, ongoing training plan for the community facilitators. Working in conflict-vulnerable areas required attributes that included the need to work in non-judgmental and bias-free way, with empathy, positivity, and commitment.

1.3	Establish a model for enabling field staff to operate effectively and safely, including inputs from research support staff and management of security	Security plan and project operational model to coordinate project research inputs in place	June 2021	The project level security plan was developed then implemented and reviewed at all project review meetings. The LFPI Executive Director, led the implementation of the security plan with timely updates to staff and revisions to the plan when required. Although the overall security situation in Mindanao deteriorated at times, project staff were able to complete almost all project activities within the existing project security protocols. Signboards were progressively deployed within project sites to strengthen the positive image of the project. A risk management analysis was also tabled covering not only security issues but other areas of the project that require appropriate management of risk. Team management reviewed the analysis with staff input. As a result of the continuing volatile security position throughout Mindanao, the project team resolved in February 2018 to become more closely affiliated with the UN Department of Safety and Security (UNDSS) based in Davao. The project was subsequently endorsed as part of the UNDSS security advisory. In addition, staff participated in the 'Saving Lives Together' program of UNDSS, as well as the program of the Mindanao Humanitarian Team of the UN Office for the Coordination of Human Affairs (UN-OCHA).
		Formally review security plan at each review workshop	June 2021	The security plan was formerly reviewed at each review workshop. Security reports were communicated regularly to staff and alerts provided on an as needs basis. An additional process introduced in February 2018 was a more purposeful engagement and coordination with police and military agencies to ensure project activities were not perceived to be associated with 'extremist' groups, some of which pursue programs that had similarities to the AMAEP.

1.4	Develop a benchmark or baseline of existing agricultural livelihood activities, social capital and extension practices within case study communities	Analysis of case study communities at start of project including: Transect map and resource map; Perceptions on consequences of conflict; Farmer profiles and livelihood strategies; Map of the social networks and analysis of the power and gender issues; Trust and trustworthiness levels of farmers Profile of peoples' organisations; Analysis of extension processes and agencies.	June 2021	The initial baseline study included detailed analysis of the case study communities and project partners including perceptions on consequences of conflict, farmer profiles and livelihood strategies. This detailed analysis of some aspects of the baseline surveys for the first 3 case study sites was warranted (Working Papers 6,7 and 8) however a shorter and sharper set of performance indicators were used for the second set of 3 case studies sites. The community facilitators conducted Community Mapping workshops with each of the Case Study communities. Working Paper 12 provides a contextual background to the social capital measures at the first six project case study sites. Working Paper 17 describes the levels of trust and trustworthiness in the farmer groups. Working Paper 14 presents a synthesis of social capital understanding derived from foundational work undertaken in the project. An analysis of the extension processes is covered in Working Paper Working Paper 35 *Impacts of AMAEP on the Cost-Effectiveness of Extension Service Delivery by Department of Social Welfare and Development in Zamboanga Sibugay, Philippines.*
		Desktop review of literature on agricultural extension processes in conflict areas	December 2013	The desktop review was conducted at the beginning of the project and documented in Working Paper Working Paper No. 1 *Agricultural extension in areas currently affected by conflict, with an emphasis on Mindanao, Philippines: literature review*.
		Review of baseline findings in the context of literature review	1st Baseline at Pilot sites reviewed September 2014. 2nd Baseline at Expansion sites reviewed November 2015	The baseline findings were reviewed and reported through Working Paper No. 6 *Results of farmer survey Barangay Magdaup Ipil, Zamboanga Sibugay;* Working Paper No.7 *Results of farmer survey Barangay Kauran Ampatuan, Maguindanao;* Working Paper No.8 *Results of farmer survey Barangay Assumption Koronadel, South Cotabato*; Working Paper No.9 *Site descriptions and results of surveys of extension agencies and others with an interest in agricultural extension in the initial three target communities* and Working Paper No.17 *Baseline survey of indicators for monitoring project impacts in the conflict-vulnerable areas in Mindanao*

PC = partner country, A = Australia

Objective 2: To implement a pilot program of improved extension and livelihood innovations, making use of principles and methods largely derived from previous ACIAR projects

no.	activity	outputs/ milestones	completion date	comments
2.1	Use improved extension principles and methods to develop and implement a program of appropriate livelihood innovations	Farmer-driven but scientist monitored experimental trials in farmer's field and marketing experiments, especially focussing on improved information flows; Ongoing assessment and modification of pilot testing	June 2021	In the first year it was clear that scientist-monitored trials were not necessarily appropriate milestones for the activity, so scientist involvement in farmers' fields was not explicitly pursued. Individual farmer experimentation was however being encouraged, undertaken and documented. The project expanded from 3 pilot sites to 3 expansion sites (6 total). Programs of livelihood innovation continued at the three-core project case study sites and the three expansion case study sites. These innovations were primarily farmer driven. For example • In the South Cotabato site, both farmer groups (Olo-clofe B'laan Landcare Association – OBLA, and Nga-Bango B'laan Aksasato Farmers group - NBBAF) opened their own village stores and were active in pursuing new livelihood opportunities with more than 80% participation of members. • In the Maguindanao site, a partnership between two farmer groups with the Philippine Coconut Authority (PCA) resulted in the establishment of 60 ha of collaborative plantings, and the development of a plan to establish a small-scale processing facility and a P2m coconut seedling grower program. • At the Ipil site a new group – the Katipunan Vegetable and Agar-Agar Growers Association (KVAGA) – was formed with 60 farmer members and an 80% adoption of container vegetable gardening. Of particular significance was the appointment by the Ipil Mayor of a Local Government Unit focal person, and the training and deployment of 10 farmer technicians.

	Work with farmers and extension agencies to identify the value and role of social capital in relation to agricultural extension and livelihood improvement	A definition and measurement of social capital relevant to the context of livelihood improvements in conflict zones; specification as to how social capital can play a key role in agricultural extension, especially in conflict areas; Ongoing assessment and modification of pilot testing	Definition and measurement systems were identified by October 2014. Ongoing research was completed June 2021.	The definition of social capital was documented in Working Paper 3. *Social Capital: literature review and layman's guide*. Ongoing research on social capital was published as working papers and posted to the project web site: • Working Paper 11 *Social Capital in the AMAEP pilot site farming communities of western Mindanao*; • Working Paper 13 *The use of Trust Games in measuring social capital in a conflct vulnerable area of Mindanao, Philippines*; • Working Paper 14 *Understanding social capital in the AMAEP pilot site farm communities of western Mindanao*; • Working Paper 15. *Assessment of social capital networks in Ampatuan, Maguindanao;* • Working Paper 16. *Social capital and economic growth*; • Working Paper 17. *Baseline survey of indicators for monitoring project impacts in the conflict-vulnerable areas in Mindanao;* • Working Paper 18. *Position paper on the role of social capital in the project from the perspective of measuring benefits and costs*; • Working Paper 19 – *Women's roles in peace building*; • Working Paper 21 – *The relationship between social capital and economic welfare at the initial case study sites* ; • Working Paper 31 – *Exploring cooperation between non-members and members of Magdaup Vegetable Growers Association (MVGA*); In addition, six peer reviewed papers were published relating to social capital – See List of publications produced by project

2.2	Involve local extension and other relevant agencies in case study areas in the pilot program, provide training and progressively build extension capacity	Active and durable partnership with extension agencies in case study areas with quality inputs being made by them into the project	June 2021	In all case study sites, there were very positive indicators of increasing extension capacity and ownership of the LIFE model. Examples include: • Provision of counterpart resources from LGUs. These include increased involvement of LGU staff in visits to the sites and provision of training to farmers; and provision of budget and material resources from their programs. • Collaborative partnerships with key Government and NGO sources of technical and material support. For example, the Philippine Coconut Authority (PCA) now considers the project as one of its major strategic partners for the Philippines in servicing farmer technical needs such as the provision of coconut planting materials and fertilisers. • The incorporation of the LIFE model into University of Philippines Mindanao curriculum and rural outreach program. • LIFE model training commissioned by the Department of Agriculture-Agriculture Training Institute • The PULL program, with support from AMAEP and through UP Mindanao, signed MOAs with five institutions. These relationships have translated into funding projects and infrastructure that support farmer and communities.
2.3	Hand over the major responsibility for ongoing management of programs in existing case study sites		June 2021	AMAEP completed the transition and phasing out process. Pleasingly, follow-up observations by the facilitators report that the farmer groups continue to engage and negotiate with project stakeholders especially the Barangay Local Government Units and local government departments such as the municipal agriculture office, municipal/city environment office and municipal planning and environment office. This has occurred without intervention or support from the AMAEP facilitators.

Objective 3: To analyse the impacts of the pilot extension and livelihood innovation program

no.	activity	outputs/ milestones	completion date	comments

3.1	Develop appropriate metrics and measure and document outcomes (changes in economic livelihoods, farmer capacity to apply technologies, social capital development including trust/trustworthiness, empowerment of women, extension systems) and analyse against the baseline findings identified in Objective 1	Development of appropriate metrics and measurement of change, using a two-tiered process of triangulation of metrics to correctly attribute research outputs	June 2021	Measurement of change was ongoing and documented through Working Papers related to economic livelihood improvement (see below). More in-depth social capital analyses (see social capital Working Papers under 2.1 above); and the 'exit' workshops with farmer groups at the sites. Working papers related to economic livelihoods included: • Working Paper 20 – *Costs associated with rolling out the AMAEP extension model to new sites;* • Working Paper 21 – *The relationship between social capital and economic welfare at the initial case study sites;* • Working Paper 22 – *Economic assessment of the tree seedling nursery: the case of selected farmers of Assumption, Koronadal City in Mindanao, Philippines*; • Working Paper 23 – *Economic assessment of vegetable production: the case of selected farmers of Magdaup, Ipil, Zamboanga Sibugay in Mindanao, Philippines*; • Working Paper 24 – Preliminary Benefit Cost analysis of LIFE Model application in vegetable growing in Zamboanga Sibugay (new); • Working Paper 25 – *Economic returns for tree seedling nurseries: the case of farmers of Sanghanan, Kabasalan in Mindanao, Philippines*; • Working Paper 28 – *Economic assessment of the vegetable production livelihood system: the case of selected farmers of Barangay Saravia, Koronadal City, South Cotabato*. • Key economic findings were that the improvement of farmer incomes from diversification into tree nurseries ranged from 10 to 20% (with a return on investment of 69 to 225%), while vegetable growing added from 20 to 69% (with a return on investment of 96 to 420%). Social capital research conducted in the two more conflict-affected sites showed clear evidence of improving trust and cooperation between previous deeply divided groups within the communities – whether the previous distrust and lack of cooperation had a religious, cultural or political basis. The research also identified the vital role that women play in building social capital and achieving a more peaceful community. Working Papers on the link between social capital and economic welfare, and the Benefit-Cost analysis of the model, have been prepared for journal publication and submitted to relevant journals. The measurement for change was completed by two major studies on economic and social livelihood improvement. Working Paper 29 is an

				assessment of the livelihood innovation of the project on farmer group members in barangay Salman, Maguindano, and Working Paper 34 is an impact assessment of the livelihood interventions on farmer groups in barangays Saravia and Assumption, South Cotabato. These two papers focused on farm level impacts of the project. However, Working Paper 35 focusses on the institutional impact and reports on the cost effectiveness of extension service delivery of project partner Department of Social Welfare and Development (DSWD) as a case study. In summary there were demonstrated positive impacts of the LIFE model approach on the cost effectiveness of the DSWD in their service delivery function in Zamboanga Sibugay, from both quantitative and qualitative perspectives.
		Identify an appropriate monitoring and evaluation framework and incorporate research data	June 2021	A Monitoring and Evaluation framework was developed during the design of the project. This framework evolved over time as the research and field teams realised that learning was an important process to the cycle. This improved version of M&E became the Monitoring, Evaluation and Learning Framework is described in Working Paper 36 and incorporates research data generated through the project.
	Value benefits and costs of social capital	Social benefit cost analysis undertaken; report on experimental economics research and qualitative assessment of intangible benefits (to measure social capital)	June 2021	The costing of implementing the LIFE model was completed and published as Working Paper 20 in March 2016. However, this was revised to cost-benefit analysis of the LIFE Model application in Zamboanga Sibugay. This analysis showed a clear and effective return on investment, with the Zamboanga study demonstrating Php1.6m of benefits compared to Php1.1m of costs. The argument for the value of social capital in improvement of economic livelihoods was initially outlined in the literature review published as Working Paper 16 in November 2015, but later confirmed by field research in October 2016 with a study of 185 households. This study showed a clear correlation between social capital and economic welfare, with households possessing higher social capital having higher income. The finding supports the project's approach of promoting agricultural extension with a strong social capital element, thus enabling a convergence between economic and social imperatives.

3.2	Document a set of principles for improving agricultural extension in conflict areas of Mindanao	Empirical evidence on the impacts of the project for agricultural innovation, livelihood improvement and household welfare in the form of a costed set of improvement principles	June 2021	A review of the LIFE extension model was conducted at two project review meetings conducted (September 2016 and March 2017) to reflect lessons learnt during project implementation. This was significantly enhanced by the addition of Dr Melvin Carlos and Mr Agustin Ramos of PCAARRD's Technology Transfer and Promotion Division to the project team to assist in the processes of scaling up the LIFE Model. Their feedback, along with that of experienced community development specialist, Ms Mai Alagcan (ACIAR Country Manager) enabled a broader critique of the model. The feedback confirmed that the model in its current form is both robust and effective, with only minor recommendations for improvement. These included: • Tapping more into the existing technology sources of PCAARRD-DOST, where it is believed there is information that would be very beneficial to project participants. Particular examples cited were the use of seaweed leachate as a fertilizer for vegetables, and use of elite planting material resources for tree crops including the development of community-based budwood gardens • Broadening the existing project partnership in line with the 'triple helix' concept of partnerships involving public, private and academic sectors. A key potential partnership is with the Department of Agriculture's (DA) Agricultural Training Institute (ATI), in which PCAARRD could act as a mediator between the project and DA; • Promoting the project's success stories and impacts more widely, possibly using social media and videos of farmer and LGU testimonials, with different messages for different sectors. This wouldl help to build more people with credibility to 'champion' the model regionally and institutionally; • Include more clarity in the entire model on the exit plan to ensure farmers and local extension agencies are more involved in determining appropriate strategies to achieve sustainability of the process; • Looking carefully at risk management – identifying potential risks in the implementation of the model and how to best mitigate them. At a further review of the LIFE extension model was conducted at a meeting in February 2018 between project personnel. The feedback confirmed that the model is both robust and effective, with only minor recommendations for improvement. These included: • Improving the mapping of local institutional partners and farmer groups to first validate information

				and recommendations from local officials, to facilitate a more effective and durable engagement. Also ensuring that religious institutions are included in the mapping process (Steps 3 and 7 of the Model); • Improving the group tours of farmers and institutional partners to schedule the tour after some initial farmer training so that participants could be more carefully scrutinised and self-selected. Also grouping of farmers of the same culture and dialect because of the greater interaction that generally occurs (Step 10 of the Model); • Incorporate the important elements of Asset-Based Community Development (ABCD) into the approach and implementation of the model.

Objective 4: To engage more broadly with relevant conflict area extension and other agencies outside of the case study areas to communicate project methodologies and findings.

no.	activity	outputs/ milestones	completion date	comments
4.1	Develop a project advisory group, involving representatives of relevant extension and development agencies, to formalise annual input into the project	Project advisory group formed	November 2013	The advisory group consisted of selected influential institutions/organizations who provided the needed imprimatur for ongoing implementation, support and institutionalisation and the wider adoption of the model. When required Advisory Group individuals also acted as sounding boards and highlighted opportunities. The Advisory Group also met with the entire project team during the annual workshop/meetings.
		LFPI Board of Trustees (BoT) equipped to engage with scaling-up program and key conflict area agencies	June 2021	The project scaling-up activities largely shifted from LFPI to PCAARRD as part of PCAARRD-UPM-Landcare PULL project. However, LFPI Training Service Unit has led was accredited by DA-ATI as a National Extension Training Centre and has been delivering training for the Department of Agriculture.
4.2	Implement a program of communication with local chief executives, policy makers and the MILF and ARMM leadership to keep them informed of progress	Effective engagement with local chief executives, policy makers and the MILF and ARMM leadership	June 2021	The project commenced with a program of engagement and consultation with key personnel from within MILF and ARMM. Consequently, local Chief Executive's supported the establishment of pilot sites. Support for the project expanded as understanding of the project aims and the positive reputation grew. Support came from a diversity of key stakeholders including CBCS, one of the most respected civil society organisations in Maguindanao. Partnering with CBCS ensured acceptance of AMAEP by the community and the security of the staff.

		Annual showcase event in place.	June 2021	Annual showcase events occurred at local and regional scale rather than national. Showcase activities involved presentations on the model and conflict area management processes where all agencies from all three sites were involved. More targeted communications included small group presentations at the LGU level and local level site update information bulletins. Presentations were also made to regional level agencies such as the Mindanao Development Authority and National Economic and Development Authority. Of note a special training workshop was offered in Lantapan in October 2017 where 30 personnel from scaling up agencies and project partner agencies (including CEOs) were updated on the LIFE approach and consulted on issues and improvements. A second special workshop was held in Manila involving staff and line managers of seven key scaling up and partner agencies. All agencies expressed a high level of enthusiasm for the LIFE model and tabled a number of benefits from using it. Establishment of the Facebook page (ACIAR Mindanao Agricultural Extension Project – @LIFE.AMAEP), with regular posts being made by project personnel.
		Promotion of documented set of principles for improving agricultural extension in conflict areas	June 2021	The LIFE Package includes a guide/reference book called The Facts of LIFE Chapter 4 The evolution of LIFE includes descriptions of the development of 20 principles and implementation of these principles. These are presented in a Table that links the principles to the three strategies for delivering the program: Strategy 1: Improve farmers' access to technical innovations. Strategy 2: Build community social capital. Strategy 3: Collaborate closely with local institutional partners to build effective and sustainable partnerships.
		Review of communication processes and adoption of improved communication strategy for remainder of project	February 2018	All communications were reviewed as part of the project team review meeting in Manila in February 2018. As a result, a strategy was developed that covered the development of the LIFE Package, a forward program of communication at regional and site level by the field management team, and a program of communication with higher-level institutional partners involved in the scaling up and institutional development of the LIFE. During the last two years of the project the Philippines went into lockdown due to the COVID pandemic. Virtual Team meetings were stepped up to weekly to keep staff updated, as a check on security and wellbeing; and to plan for COVID responses and eventually the project wind-up activities.

4.3	As results emerge, promote the improved extension methods and approaches to other conflict area extension agencies	Scaling-up strategy developed and implemented in conjunction with Project Advisory Group and key partner agencies (proactive and reactive)		Initially the project's scaling up strategy was delayed because of limited resources and political inertia leading up to and after the May 2016 Philippines national elections. However, this issue was resolved through ACIAR's approval of an 18-month project extension which enabled the strategy to be re-planned.
		Appropriate scaling-up sites initiated	December 2017	The project's scaling up program, finalised at the September 2016 project team meeting, was rolled out under a two-part strategy: 1. Scaling up the LIFE Approach through the PCAARRD-funded PULL (PCAARRD-UPMindanao- LFPI-LIFE) Program in three new sites in conflict-affected areas of western Mindanao, involving a PCAARRD research consortium; 2. Scaling out the LIFE Approach through mentoring five agencies across the different classes of conflict area extension agencies. The five institutional partners were: 1. City Agriculture Office (CAO) Koronadal City; 2. City Environment and Natural Resources Office (CENRO) Koronadal City; 3. Municipal Social Welfare and Development Office (MSWDO); 4. Sibugay Technical Institute Incorporated (STII) and 5.the Consortium of Bangsamoro Civil Society (CBCS) as the project's institutional partners. The scaling up PULL Program was commenced in December 2017 and was progressively rolled out across the following sites: • Surallah in South Cotabato; • Datu Abdullah Sangki in Maguindanao; • Ipil (Katipunan and Buluan) in Zamboanga Sibugay. The scaling out institutional partner program occurred at the following sites: • Zamboanga Sibugay – Barangay Upper Pangi – scaling out partner agency: Sibugay Technical Institute Inc (STII); • Zamboanga Sibugay – Barangays of Caparan and Tiayon – scaling out partner agency: Municipal Social Welfare Development Office (MSWDO); • Maguindanao – Barangay of Saniag – scaling out partner agency: Consortium of Bangsamoro Civil Societies (CBCS); • South Cotabato – Barangays of Mabini, San Jose and Topland – scaling out partner agency – Koronadal City LGU (City Agriculture Office – CAO and City Environment and Natural Resources Office – CENRO).

		Analysis of conflict area agencies leading to identification of up to six new agencies to test the extension model within their own programs	December 2017	The analysis was completed and a new set of criteria was developed for the selection of the institutional partners. The AMAEP team selected the institutional partners based on the following criteria: • Relevance of the institution; • Existing projects/programs; • Interests to the project; • Willingness to invest or put in their counterpart (in terms of human resource and support for livelihood); • Target impact or value in partnering. In all seven sites being scaled out by the partner agencies, the following activities were completed: • Facilitators identified and trained; • Farmer groups mapped and either group selected or new group formed; • Farmer priorities identified and activity schedules formulated; • Inspirational cross visits conducted; • Farmer training conducted. System of monthly mentoring and monitoring by AMAEP staff of PULL facilitators was initiated.
		Complete analysis of the model testing by the five scaling-out agencies, implement an exit strategy and evaluate exit strategy	May 2021	The model was subsequently scaled out to 14 sites: one in Maguindanao, by CBCS; seven in Zamboanga Sibugay, by MSWDO and STII; and six in South Cotabato, by CENRO and CAO. In all cases, the scaling out institution fully managed the 16-step LIFE model implementation, with regular support and mentoring from the AMAEP community facilitators.
		Incremental expansion of use of model beyond case study sites by local agency partners		Expansion of the use of LIFE increased through the PULL sites supported by AMAEP facilitators. Furthermore, local government units continue to expand into barangays nearby to AMAEP and PULL sites.
		Development of hardcopy and web-based resource materials to support scaling-up programs	June 2021	The LIFE Package was virtually launched during the LIFE Forum in June 2021. DOST-PCAARRD hosted the event as a feature of its 10th Anniversary Celebration. The package included: a reference/guide book, video library and training manual. In response to COVID-19 restrictions Farmer Field School modules have been produced as videos for farmers.
		Integration of video and handbook into a training program for potential delivery under DA-ATI sponsorship	June 2021	A no-cost extension (January – June 2021) enabled the delivery and launch of the LIFE Package (consisting of a reference book, video library and training manual) and the LIFE Forum of virtual presentations hosted by DOST-PCAARRD as a feature of their 10th Anniversary. The LIFE Package and LIFE Fora synthesized the research findings to targeted audiences including the training programs commissioned by DA-ATI.

		Documentation of the six case studies of institutional scaling-out and scaling-up as a Working Paper	June 2021	The scaling out process with institutional partners was documented in The Facts of Life, Chapter 4 Stage 6: Scaling out, scaling up and training The chapter discusses how AMAEP took the opportunity to test its broader potential with five additional extension institutions within reach of the sites. Working Paper 37 Going to Scale with Institutional Partners also documents the six institutional scaling-out and scaling-up case studies.
4.4	Work with PCAARRD, local chief executives, policy makers and the MILF and ARMM leadership to develop an action plan for implementation of the 'model' for improved agricultural extension in Mindanao conflict zones beyond end of project	Action plan developed for wider promulgation of project findings	June 2021	During the final year of the project two submissions were made to DFAT and PCAARRD that would see that adoption and implementation of the LIFE model beyond end of project.

8 Key results and discussion

This section outlines the key findings identified through the study in relation to the research questions:

1. How does conflict affect the delivery of agricultural extension and subsequently the agricultural livelihoods of farming communities in conflict areas?
2. How can improved extension methods be most appropriately applied in conflict areas?
3. What agricultural livelihood improvements can be achieved through improved extension methods in conflict areas?
4. How can improved extension methods be best promulgated throughout the areas affected by conflict

8.1 Research Question 1. How does conflict affect the delivery of agricultural extension and subsequently the agricultural livelihoods of farming communities in conflict areas?

The collected findings from the AMAEP research (baseline, interview, focus groups etc) identified that the impact of conflict on farmers was primarily economic and social. Economic impacts included displacement from farms; frequent dislocation to production, labour deployment, purchase of farm inputs and marketing activities; and lack of confidence in investing in longer-term crops and farming infrastructure. From a social perspective, farmers felt socially isolated with a reduced ability to network together as a result of a reduction in the movement of farmer and other innovators in and out of their area. Women were found to be particularly vulnerable to social isolation. In addition, farmers noted a significant reduction in the flow of information and social support services from various external sources. An important finding was that the impacts of conflict were similar across religious, ideological and cultural divisions.

Other authors studying the impact of conflict (Schiavo-Campo & Judd, 2005; Parks et al 3013; Adam et al, 2014; Strachan, 2015 and Chandra et al 2017) have added to our understanding and their conclusions support the findings from this study. The main impacts of conflict are described in terms of impact on economic livelihoods, social life and extension service delivery. The findings include:

Economic impacts of conflict:

- Displacement from farms, restriction on movements and general hesitation about present and future crops, all of which dislocate on-farm activities, production and purchase of farm inputs. The obvious effects include food insecurity, seasonal hunger and a debt trap created by a reduction in income.
- Closure of local marketing outlets, and difficulties with transport to more distant markets.
- Difficulties with obtaining labour and reduction in part-time labour opportunities for farming families.
- Lack of confidence in investing in longer-term tree crops and farming infrastructure such as irrigation.
- Disruption of rural credit flows and less availability/greater competition for agricultural inputs such as seeds and fertilisers.

- Destruction of property and loss of productive assets when displaced from the farm. Productive assets may include actual crops, draught animals such as carabaos, water storage and even the land itself.
- Loss of life or injury to family members, thereby disrupting productive potential.

Social impacts of conflict:

- Disruption of community social capital – social capital being essentially trust capital which unlike physical capital grows as it is used. In conflict situations, farmers feel socially isolated with a reduced ability to network together as a result of a reduction in the movement of farmers and other innovators in and out of their area.
- Women are particularly vulnerable during conflict and often choose to migrate from impacted areas as a coping strategy.
- Changes in gender roles within families and the community. This can have both positive and negative impacts. On the positive side, women participate more fully in the peace process and governance, often providing a much more practical and reasoned approach to the nexus between arms and violence. On the negative side, women's roles in care giving and family capacity is compromised.
- Possible emergence of informal shadow economies which can include crime and illegal activities, drug trafficking, underhand practices and extortion from informal credit provision.
- Possible exploitation of weaker families and groups from a loss of the normal community protection networks.

Extension service delivery impacts of conflict:

- Involvement of Government staff in affected communities is reduced or ceases entirely, as staff and services are withdrawn from conflict affected areas. This impacts on the whole range of government services including agriculture, health and education. In some cases, civil registries are removed, inhibiting access to social welfare and employment. In other cases, justice and security systems are removed. The absence of government services and the associated reduction in government spending contributes to greatly increased fragility and instability of affected communities.
- National and international aid and development institutions and projects, may withdraw.
- A greater risk of political instability, particularly around elections. This potentially puts at risk policy and legislative initiatives that support farming communities.

In its 2013 report on the impacts of conflict the Asia Foundation (Asia Foundation 2013) noted that participatory forms of community-based development (CBD) approaches potentially helped reduce intra-community violent conflict by incorporating participatory practices and joint problem solving, which improves self-reliance. The Foundation highlighted that one of the reasons why CBD approaches have been widely used in conflict-affected areas is the assumption that projects implemented at the community level allow for greater responsiveness to local concerns and conditions. The relevant key findings from this study included:

- Project design must be flexible and adaptable. This is because conflict dynamics in the Philippines are complex, diverse, multilayered, and localised. For these reasons, it is important not to be too rigid in project design, but creatively adapt, in order to constructively address and meet community needs. In some cases,

projects can lead to further polarisation in the community, for example if one segment of the community is seen to be favoured over another.

- It is important to undertake community and subregional conflict analysis. Projects should attempt to conduct their own analysis of local conflict and try to map power relations at the local barangay or municipal level. This is to understand and address local conflict and security dynamics that could undermine the effort.
- It is essential to collect evidence of impact especially transformative impacts – along with the normal development impacts. Transformative impacts include strengthening institutions, social cohesion, violence levels, relationships between the community and government, and the capacity for problem solving and collective action.
- CBD approaches need to be long-term, as it generally takes three to five years to build trust in local institutions.

While these findings are highly relevant to the LIFE model the project team interprets LIFE to be a 'community-based extension' approach rather than a community based-development approach. This emphasises the importance of the extension methodology as well as the fact that LIFE is predominantly concerned with transformative outcomes rather than development outcomes.

8.2 Research Question 2 How can improved extension methods be most appropriately applied in conflict areas?

The first step in developing the LIFE model was to carefully review the experiences of previous ACIAR projects in Mindanao to identify key learnings. Nine learnings were identified from the review:

1. Using trained community-based 'Facilitators' to work with farmers on improving their livelihoods. Facilitators facilitate action, but do not command it or lead it. They emphasise the importance of the farmers themselves taking ownership of their future and then helping them on their journey to achieve their goals. In this process, they link the farmers to research support, material support, other farmers who may be able to help or inspire them, government institution support, and the services of other institutions such as NGOs. To be successful in the role, Facilitators need to obtain the trust of the farmers – this means being open and honest with them, and not having any hidden agendas.

2. Encourage farmers to take a lead role. Although a technical or resource person will generally initiate a project or activity, it is important that farmers are encouraged to quickly assume the lead role as this increase's ownership of the process and the outcomes. This process involves identifying farmer leaders (those that can help the farmers to develop greater self-sufficiency) and mentoring and fostering these leaders. Supporting farmers to take the lead has three important dimensions.

First, through leadership, communities can build human assets such as local and Indigenous knowledge, and work on developing these assets.

Second, by actively participating in the research – expressing their needs to researchers, and adapting and experimenting with new recommended practices – farmers are able to better evaluate technical claims and not accept the regular 'techno-fads'. It also helps them to better assess the real costs and benefits of research innovations.

Third, actively participating in the extension – relying less on technical 'experts' and more on farmer-to-farmer learning and training – can extend to farmers becoming the main extension workers, where they are trained and mentored as Farmer Facilitators. This may involve receiving incentives and rewards. The concept of a Farmer Training Group (FTG) – farmers training other farmers – is a variation of this principle.

3. Encouraging farmers to work in existing groups, or create new groups. In general, groups facilitate better sharing, better learning, better social networking and better collective action. A key outcome of the social networking is the building of social capital – both bonding (within the group) and bridging (outside the group).

4. Maximising the opportunity for farmers to be inspired with new innovations. In most cases, the potential for poor farmers in remote areas to be interfaced with new innovations are constrained by two factors: firstly, the fact that few innovators visit their barangay/municipality; and secondly their inability to travel very far outside of their immediate barangay/municipality to view new innovations. Inspiration comes from farmers being able to see new innovations with their own eyes and set these within their own farm context. A very effective process used by the Landcare project was farmer-to-farmer cross visits, where groups of farmers were transported to the farms of farmer innovators to view what these farmers were doing. The visits also included interchange with technical specialists on the farms as well as visits to specialist research farms.

The next step was to place these learnings within a working set of key principles vital for effective extension programs in general, and for conflict-vulnerable communities in particular. Twenty principles were identified (see Table 3 20 key principles under each of the three strategies). At the same time, the review identified what the project believed were three essential strategies for delivering the program – under which the 20 principles could be effectively grouped:

1. Providing farmer access to technical innovations;
2. Building community social capital; and
3. Collaborating closely with local institutional partners to build effective and sustainable partnerships.

Importantly, the three strategies were considered to be of equal weighting and needed to be delivered concurrently for the outcomes and impacts to be most effective.

Table 2 20 key principles under each of the three strategies

Strategy 1: Improving farmer access to technical innovations	Strategy 2: Building community social capital	Strategy 3: Collaborating closely with local institutional partners
• Facilitating change rather than leading or 'imposing' it • Getting farmers to take the major responsibility for decision-making – deciding their own priorities and goals • Using farmer centred training and learning – learning by doing, learning from peers and learning through actually visualising the change (strong focus on farmer to farmer learning with priority on farmer cross-visits, farmer demonstrations, farmer hands-on learning, farmer field schools, farmer experimentation with	• Working with farmers in groups as these are a more efficient and generally more effective process for achieving change. Focus on primarily working with existing farmer groups, and where none exist, form groups for the purposes of the project. However, where an influential farmer prefers to work outside of the group, take special measures to interface his/her experience and expertise with the group • Using special group-based learning processes to enhance longer-term social capital e.g. cross visits involving farmers and LGU officials • Facilitating farmer groups to manage their own futures by becoming part of the formal LGU planning and	• Including ALL agencies with an interest in the sites to be involved in discussions and project activities, either directly or indirectly (requires institutional mapping to ensure all relevant agencies are effectively identified) • Regularly communicating with project partners on activities and outcomes, even where an agency does not appear to be particularly interested • Using communication processes that are relevant to agencies in the partnership (may

Strategy 1: Improving farmer access to technical innovations	Strategy 2: Building community social capital	Strategy 3: Collaborating closely with local institutional partners
new technologies and deployment of farmer facilitators) • Building self-help capacity and self-sufficiency of farmers, rather than just providing technical solutions and farm input materials. In this process, build on existing or perceived strengths, as these are likely to be the most effective platform for the development of self-sufficiency • Using communication processes that are relevant to farmers and most effective in conflict-prone areas (e.g. cell phones) • Improving both the farm production system and the linkage between farmers and markets	development process (Barangay and Municipal Development Plans) • Better understanding the impacts of conflict on men, women, farming units, community organisations and extension agencies with a view to developing more conflict-resilient extension processes • Carefully studying gender issues as part of the adaptive research and as part of the development of more conflict-resilient extension systems, and enhancing the involvement of women • Implementing our programs at all times with a deep respect for, and sensitivity to, the diverse ethnic and cultural values of the target communities • Analysing all project interventions against an appropriate measure of trust and consumer confidence • Maintaining a strong local presence in the community e.g. activities within the site – not remote; facilitators embedded within the community	require collaborative identification of these) • Seeking regular feedback from partner agencies on the performance of the project and the nature of agency involvement • Paying particular attention to training and other processes to build the service and decision-making capacity of extension agency personnel • Facilitating the linkages between LGUs and farmer groups in farmers becoming part of the formal LGU planning and development process (Barangay and Municipal Development Plans)

Selection of the pilot case study sites was important and is discussed in 5.2 Site selection.

Once the Community Facilitators were deployed the project team set about developing a set of implementation steps for the LIFE Model. The 16 steps are listed as follows:

1. Identify or select an appropriate site.
2. Appoint/identify/recruit an appropriate Community Facilitator.
3. Train and orientate the Facilitator.
4. Identify priority institutional stakeholders (LGUs, NGOs, other agencies).
5. Consult with relevant LGU and other institutions.
6. Improve and document the understanding of the farmers and their livelihood improvement issues.
7. Initial engagement with farmers and clarification of farmer groups.
8. Map groups as to their relevance and influence – and from this identify the best farmer groups to work with.

9. Engage with farmer groups and key institutional partners to orientate them to the process and seek input.
10. Group workshop of farmers and institutional partners to identify main farmer drivers and needs.
11. Group tour of farmers and institutional partners to innovators (inspirational cross-visit).
12. Implementation of livelihood development activities.
13. In implementation of activities, regularly review and discuss ways to improve social capital, group health, gender equity and farmer leadership.
14. Where possible and appropriate, train and deploy farmer facilitators.
15. Regularly keep institutional partners informed and where possible involved in activities.
16. Regularly monitor and record changes at both farmer and institutional levels and reflect on changes necessary to improve outcomes (action research methodology

Nearing the conclusion of the project, further reflection on appropriate application of the extension process, produced additional learnings for applying the LIFE model. These include:

- The importance and value of the facilitation approach where extension officers work locally with groups of farmers to identify common problems and develop shared solutions. In this way, extension officers become ‘knowledge brokers’ rather than knowledge providers.
- Decentralised, participatory, market-driven extension is more successful in developing farmer capacity, compared to a rigid and hierarchical approach.
- It is better to build on existing systems (which are often surprisingly resilient in the face of conflict) rather than impose solutions which may not be sustainable post-project.
- Encouragement of farmer experimentation with potential new technologies has the potential advantage that it can work more or less independently of conflict.
- Disaster relief such as providing seeds and tools is not enough in situations of chronic conflict, and there is a need to also support livelihoods from a more holistic and longer-term perspective.
- Institutional capacity building with a strong level of community participation helps to strengthen local institutions while increasing the self-help capacity of the farmers. There should always be a balance between improved extension capacity and livelihood improvement for farmers.
- There is a need for emphasis on providing services to groups of farmers. It is believed that groups have greater potential to reach across the conflict divide, particularly where they involve a ‘tri-people’ (Moros, Christians, Lumads) collaborative approach.
- Integrate gender that addresses the needs of both women and men into the mainstream of the process, while recognising that women and girls are often disproportionately affected by conflict.
- Although it is rarely possible, it is good if the farmers can be involved in selecting, supporting and evaluating extension staff. The relationship that an extension

officer has with his or her community and the trust they enjoy are vital in achieving rapid results.

- Where effective Non-Government Organisations (NGO's) and Civil Society Organisations (CSO's) are available in a community, they may find it easier to operate, encountering less resistance from extremist groups, in comparison to a government agency. The key then is for public-private partnerships to leverage the benefits for all parties.
- The development of social capital is clearly a key component of effective community-based agricultural extension in conflict areas, where isolation is a consequence of conflict. This should lead not only to improved agricultural and economic productivity, but also to increased levels of trust, better networks, and an enhanced capacity to work collectively for mutual gain.

8.3 Research Question 3 What agricultural livelihood improvements can be achieved through improved extension methods in conflict areas?

8.3.1 Farm impact

Two studies assessed the economic and social livelihood improvement of farmers who participated in AMAEP and measure the change that occurred before and during participation in the project. The full studies are available at: https://sites.google.com/site/improvedextensionproject/publications/working-papers.

The first study (documented in Working Paper 29) was an assessment of the livelihood innovation of the project on the Salman Farmers Association (SAFA) farmer group members in barangay Salman, Maguindano. The team employed a case study approach using primary data collection through personal interviews of twelve (12) randomly selected SAFA members before the culmination program in Barangay Salman. An assessment survey questionnaire was split into three (3) sections - (a) farmer's characteristics; (b) average monthly income and savings before and during the project; and (c) changes in household expenditures before and during the project, categorized into three levels – insufficient, sufficient, or more than sufficient. This analysis was backstopped by an empirical examination of the vegetable growing enterprise for two of the case study farmers in order to lend credibility to the farmers' estimates.

A simple directional analysis was used in assessing the changes in farmers monthly income and savings (i.e. higher or lower). A similar analysis was undertaken in relation to the ability to meet household needs before and during the livelihood project (i.e. insufficient, sufficient, or more than sufficient).

Results showed that on average, monthly income of SAFA members increases from PhP 4,075 to PhP 7,283 or seventy eight percent (78%) increase change after participating in AMAEP vegetable production and attending trainings, demos, and other activities. Likewise, average monthly savings increases from PhP 58 to PhP 1,637 or 2700% increase change (see Table 4 Mean monthly income and savings of selected SAFA members.

Table 3 Mean monthly income and savings of selected SAFA members

Variable	Obs.	Mean	Std Dev.	Min	Max
Before project income	12	4075	3935	1000	15000
During project income	12	7283	5180	2000	18000
Before project savings	12	58	150	0	500
During project savings	12	1637	1356	350	5000

Before the project, some farmers had zero savings because all income was allocated for paying debt/loan gained from corn production. However, changes occurred when they started selling vegetables like squash, pechay, onion, eggplant, pepper, bitter gourd, stringbean, and tomato. Their monthly income increased and they were able to pay their debt/loan, save money for future and other uses.

The study also reported on that 7 out of 12 participants said that participating in vegetable production had helped them to have a sufficient source of food right in front of their backyard, allowing them to eat more than 3 times a day. Fifty percent (50%) of the participants described that before AMAEP, buying clothes even in “ukay-ukay” (thrift market) was costly and hard due to lack of money. However, after participating in vegetable production and having an extra income every month, buying new clothes is easier and affordable now. Importantly, 7 out of 12 participants could not afford buying medicines before the project making them very dependent on Barangay Health Office’s medical supply. But now, buying medicines was easier because they had extra income from vegetable production.

The farmers also reported that corn production was costly and labour intensive, and income was not sufficient which led to higher debt/loans. The farmers now realise that vegetable production provides high return with cheaper material and production costs in comparison to corn production.

The second study (reported in Working Paper 34) is an impact assessment of the livelihood interventions on farmer groups in barangays Saravia and Assumption, South Cotabato. The Nga Bango B’laan Aksasato Farmers (NBBAF) in Barangay Saravia had 24 active members while the Olo-Clofe Bla’an Landcare Farmers Association (OBLA) in Barangay Assumption had 24 active members. A total of 48 farm group members were interviewed.

Farmers at both sites had undergone a series of training in vegetable production, learnt different farming techniques, and had been involved in consultations and collaboration with other farmers, and various institutional partners.

The team conducted a individual interviews with all active members. An assessment survey questionnaire was split into six (6) sections – (a) farmer’s demographic characteristics and crops grown; (b) economic and lifestyle (in terms of meeting their basic household necessities); (c) knowledge, attitude, skill, and aspiration (KASA); (d) social capital including institutional linkages; (e) environmental aspects; and (f) the overall change that has occurred on their farm since the commencement of AMAEP.

The study used descriptive statistics and frequency distribution analysis to summarize the survey data. A simple difference (during and before project) analysis was used in assessing the changes in farmers' monthly income and savings, their ability to meet their basic household necessities, and the rate change on their knowledge, attitude, skill, and aspiration since the AMAEP began.

A paired t-test was also conducted to determine the statistical significance of changes in the above-mentioned variables.

Before AMAEP, the farmers usually grew corn and banana. However, when AMAEP was introduced in Barangay. Saravia and Assumption, they learnt to plant other crops including vegetables, cacao, fruit tree seedlings, and forest tree seedlings. For this study, the team focused on the assessment of vegetable production as the livelihood intervention since it was the common crop in both study sites.

To quantify the changes that the farmers experienced after participating in vegetable production, farmers were asked their 'before AMAEP' and 'during/after AMAEP' monthly income and savings. On average, results showed that income had increased from PhP 2,716.67 (before project) to PhP 4,456.25 (during project) which is a sixty-four percent (64%) increase in income.

Most of the farmers shared that they had no monthly savings before AMAEP began. However, change occurred when vegetable production was introduced as they practiced organic vegetable production, and agricultural input cost and labour cost were relatively lower than in corn production. Since then, they started saving money from PhP 652.71 monthly savings to PhP 1,362.40 or 108% increase change after implementing vegetable production see Table 4 Mean monthly income and savings of all farm group members

Table 4 Mean monthly income and savings of all farm group members

Variable	Obs.	Mean	Std Dev.	Min	Max
Before project income	48	2716.67	2578.25	200	15000
During project income	48	4456.25	4085.31	400	20000
Before project savings	48	652.71	939.10	0	4000
During project savings	48	1362.40	1484.33	0	6000

Fifty-six percent (56%) of the farmers said that food availability had increased after participating in vegetable production. Vegetables are accessible as they are grown in their backyard or farm lot. Other respondents (42%) said that they are able to have at least three (3) meals a day compared to before AMAEP where they had one (1) or two (2) meals a day. While two percent (2%) believed that there is no change on meeting their food need even after participating in vegetable production.

Buying new clothes was not a priority before AMAEP however, due to additional income from selling their vegetables, sixty-five percent (65%) of the farmers said that buying new clothes became more frequent than before.

When asked about how their ability to meet expenditure on agricultural inputs, fifty percent (50%) of the farmers said that buying agricultural inputs became sufficient after joining the AMAEP vegetable production. Interestingly, twenty-nine percent (29%) of the farmers

observed that using organic fertilizers had lessen agricultural input cost as materials used in making organic fertilizer is cheaper than buying commercial fertilizer.

8.3.2 Institutional impact

The previous studies described focussed on farm level impacts of the project. The researchers were also interested in understanding the impact of the LIFE model at institutional level. A national government agency, Department of Social Welfare and Development (DSWD) was assessed to determine the impact of the LIFE model on the cost-effectiveness of DSWD in its extension service delivery function in Ipil, Zambonga Sibugay. Cost effectiveness analysis (CEA) is a method used to compare alternatives on the basis of their costs and a single quantified but not monetised effectiveness measure, such as number of lives saved per dollar (Boardman et al., 2010). The study is reported in Working Paper 35.

A national government agency, Department of Social Welfare and Development (DSWD) was assessed to determine the impact of the LIFE model on the cost-effectiveness of DSWD in its extension service delivery function in Ipil, Zambonga Sibugay.

One of the functions of DSWD is to provide social protection to the poor, vulnerable and disadvantage sector, gives augmentation funds to local government units so they could deliver social welfare and development services to depressed municipalities and barangays, and to provide protective services to individuals, families, and communities in crisis situation (www.dswd.gov.ph). DSWD has many programs but the study focused on the *Pantawid Pamilyang Pilipino Program* (4Ps). 4Ps is a human development program of the national government that invests in the health and education of poor households, particularly of children aged 0-18 years old.

The implementation of 4Ps in Ipil, Zamboanga Sibugay started in 2012 while the AMAEP LIFE project (vegetable garden production) started in 2014 at Sitio Katipunan, Barangay Magdaup, Ipil, Zamboanga. Beneficiaries of LIFE are also beneficiaries of 4Ps.

A cost-effectiveness (CE) analysis was used to measure the cost per unit of outcome effectiveness and/or the ratio of the outcome effectiveness units per unit of budgetary cost. However, for this study, only the actual program cost, and actual number of beneficiaries of 4Ps from 2012 to 2018 were gathered from the office of DSWD-Ipil, Zamboanga Sibugay, Mindanao, Philippines.

Results showed that the actual cost-effectiveness of DSWD's 4Ps is PhP14,290.78 per beneficiary. Comparing the actual CE to the 'as planned' CE indicated large differences see Table 6 Cost effectiveness analysis for DSWD 4P Program.

Table 5 Cost effectiveness analysis for DSWD 4P Program

	DSWD
Target number of beneficiaries/hectares	5,000 beneficiaries (as of 2012)
Actual program cost/disbursed	PhP 87,130,900.00 (as of 2nd qtr 2018)
Actual number of beneficiaries	6,097 beneficiaries (as of 2018)
Initially estimated pre-LIFE (CEi=_$CiEi$ _)	**PhP 29,418.58 per beneficiary**
Actual (CEi=_$CiEi$ _)	**PhP 14,290.78 per beneficiary**

8.3.3 Perceptions at institutional level

Based on focus group discussions, DSWD described the major influences that AMAEP imparted on their programs included: knowledge sharing especially on vegetable production; improved teamwork; improved communication with communities and improved project monitoring. Employees believed that DSWD the gained benefits from their partnership with including:

(a) the provision of advice to farmers with the help from the AMAEP facilitators;

(b) program delivery became more effective;

(c) dealing with beneficiaries especially during visitation;

(d) delivery of information had become easier; and

(e) meetings, seminars, and trainings became better organised.

8.3.4 Perceptions at farm level

The 4Ps beneficiaries, received monetary help when certain conditions were met such as children enrolled in school. The Ipil municipal links/social workers had been encouraging beneficiaries to have their own container vegetable garden and added this as a condition.

All interviewees believed that the presence of AMAEP has positively changed the extension service delivery of DSWD from a 6 (before partnership) to 9 (after partnership) score rating. This positive change was due to reasons including:

- Improved technical knowledge on proper planting of vegetables such as planting distance, trimming, and application of fertilizer;
- The provision of seeds and planting tools;
- Access to other agencies;
- Provision of training; and
- Technical assistance provided to DSWD especially in vegetable production.

In summary, the DSWD cost-effectiveness analysis showed that actual cost-effectiveness of PhP 14,290.78 per beneficiary. This was supported by the empirical study of DWSD employees and farm level perceptions that showed the partnership with AMAEP had resulted in an overall positive influence/impact on DSWD's extension service delivery in Zamboanga Sibugay.

8.4 Research Question 4 How can improved extension methods be best promulgated throughout the areas affected by conflict

8.5 Promoting LIFE and going to scale

The rationale for going to scale lies with the LIFE's two foci 1) the farm level and 2) the institutional level. The farm level looks to improve extension systems that impact on the technical, economic and social dimensions of farmer livelihoods. The institutional (extension agency) level looks at how improved extension methods can be most appropriately incorporated into the extension programs of agencies operating in the conflict areas.

The scaling-up strategy AMAEP aimed for adoption of the LIFE model across larger numbers of households and communities, delivered by a larger number of service providers and extension deliverers. Taking the LIFE model to scale was an important phase of the project.

The pilot case study findings were promoted to appropriate extension agencies under the direction of the project advisory group and key strategic partners. At the same time, in order to support extension agency development, the project explored extension training and funding opportunities from higher-level agencies investing in conflict area development. Ad-hoc enquiries were responded to in an effective and timely fashion. These enquiries came from sources such as neighbouring barangays.

Importantly, at the local level as the AMAEP community facilitators developed their networks they encouraged the involvement of local extension providers, such as the city agricultural office, civil society organisations and education providers. In collaboration with the farmer groups the facilitators invited extension officers, teachers and others along to meetings, workshops, training and field visits. Often this was part of a planned communication program but sometimes it occurred as the opportunity arose.

Figure 4 Scaling up and out describes the administrative levels (i.e. from barangay (village) to the national level), while also scaling out through integration with existing partners and programs (e.g. MINDA and City LGU), as well as expanding spatially i.e. across geographic localities.

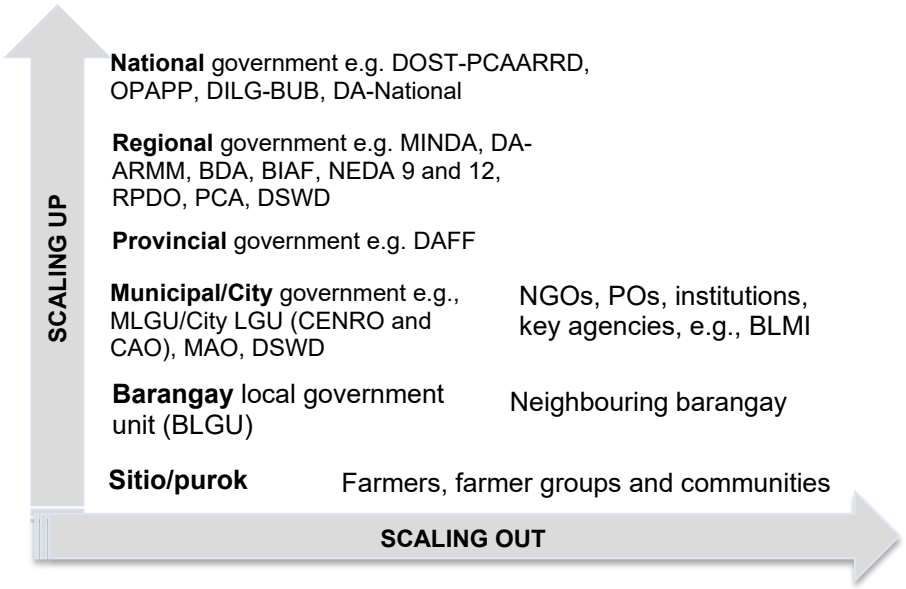

Figure 4 Scaling up and out

The same broad methodology used for livelihood improvement at a particular site, such as a focus on farmer groups, networks, information sources and local institutional capacity was used for scaling up to new sites.

A third form of scaling, Scaling Deep, occurs when there is an investment in transformative learning and communities of practice (Moore, Riddle & Vocisana, 2015). Scaling Deep recognises that culture plays a powerful role in shifting problem domains, and that change is deeply rooted in people, relationships, communities and cultures (van den Bosch & Rotman 2008).

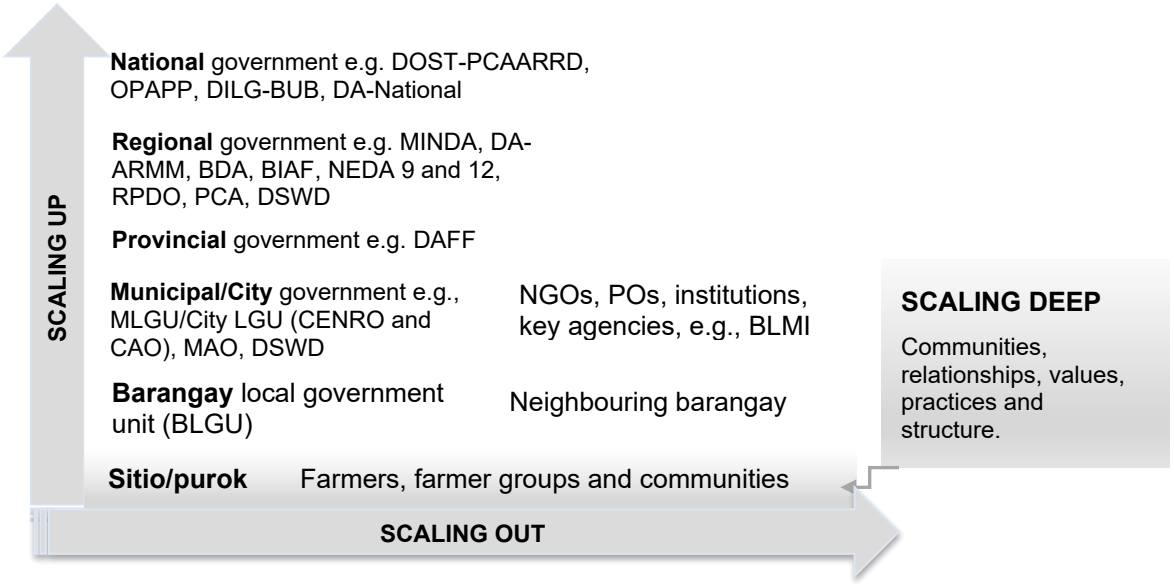

Figure 5 Scaling up, out and deep

The aim to Scale Deep was not a conscious choice by the project researchers, facilitators or partners, rather the Asset Based Community Development techniques used to implement the LIFE model also supported shifts in thinking, values and perspectives (society), that occurred as a consequence of communities now working together for a common goal (practices) through farmer and community group endeavour (structure).

This was clearly demonstrated in the case of the Nga Bango B'laan Aksasato Farmers (NBBAF). This farmers' association was established when the project started in Koronadal, South Cotabato in 2014. Over the years, the group grew from strength to strength, continuing long after the project has finished. They transformed their livelihood and consequently the quality of their life as they secured their food, able to share with other farmers the knowledge they received from the training and Farmers Field School (FFS) sessions they attended, and developed stronger and better bonds with people both within and outside of their community, including access to services and programs by the local government.

Recently, NBBAF have launched their naturally grown and pesticide-free vegetables stall at Koronadal's Satellite Market which sells produce that pesticide-free, part of the Organic Agriculture Program of the City of Koronadal. They have also been awarded the Organic Trading Post (OTP) which was funded by the Department of Agriculture Region XII, with a total budget of PhP1.4 million. One million went to the building of the infrastructure while four hundred thousand went to the operating capital of the NBBAF farmers.

8.6 LIFE Training

The Landcare Foundation of the Philippines Training Service Unit was accredited by DA-ATI as a National Extension Training Centre and has been delivering training for the Department of Agriculture.Registration. A trial three-module package was developed for extension officers and extension institutions interested in adopting LIFE. Funding for the trial program was provided by the Department of Agriculture – Agricultural Training Institute (DA-ATI) and presents another opportunity for potential scaling up the LIFE Model at the national government level.

A LIFE Training Manual has been further developed in collaboration with the PULL project.

The last phase of the eight-year AMAEP project focused on facilitator mentoring and assisting the PCAARRD project (PULL) facilitators to effectively implement and evaluate the LIFE Model in the PCAARRD pilot sites. A study of the facilitator to facilitator mentoring activities observed the relationship change over time from that of teacher-student to professional-professional. This transformation occurred as the AMAEP and PULL facilitators shared skills and knowledge and their relationships matured.

The last phase also focussed on the incorporation of the LIFE Model into barangay, municipal and provincial development plans and the deployment of farmer technicians. This occurred across most AMAEP sites through Executive Orders, MOAs, and more commonly through the Annual Investment Plans (AIPs). The AIPs are enactments of municipal legislative councils.

9 Impacts

9.1 Scientific impacts – now and in 5 years

The key impact of the project has been the development and widespread adoption of an agricultural extension model for conflict vulnerable areas of Mindanao, and a simultaneous improvement of agricultural livelihoods, community and institutional capacity and community harmony.

This has been achieved by linking economic and social concepts when developing the methodology for this agricultural extension study. The project researchers believed that the focus on the people and partnerships was key in ensuring a sustainable outcome for the project participants and developed the three-track strategy: 1. improving farmer access to technical innovations, 2. building community social capital and 3. collaborating closely with local institutional partners to frame the research design. Within this framework the project team then designed a set of principles that were informed by learning from previous extension projects and ongoing testing at the pilot sites.

As the project evolved the researchers explored a number of metrics and adaptations of existing metrics to assess and analyse a suite of the economic and social impacts. The multidisciplinary research and operational team were able to being different perspectives which enriched the learning.

The project makes a substantial contribution to the understanding of how technical, social and economic factors interplay in defining and implementing an appropriate extension methodology for conflict vulnerable communities. As such, the research has significant potential application for development initiatives elsewhere in the Philippines and in developing countries within the Asia-Pacific region.

9.2 Capacity impacts – now and in 5 years

In terms of capacity impacts, the research has confirmed that farmers have improved their individual knowledge, attitudes, skills and aspirations. For example, members of the Kauran Christian Upland Farmers Agriculture Cooperative in Maguindanao, outlined their journey from a situation before the project where they were relatively idle on their farms with limited technical knowledge about their farm enterprises, to the present where they are much more productive with new cropping systems. Importantly the group members have recognised the link between training and additional income generation.

In terms of natural capital, the Landcare Foundation of the Philippines Inc as a proponent of sustainable farming systems, has been able to successfully integrate contour farming systems and other conservation practices into the agroforestry and vegetable farming systems being pursued by farmers. More than 60% of participating farmers have adopted these practices as an integral component of their new farming systems. Another interesting case of improving natural capital is in the South Cotabato site where the livelihood activity of charcoal production from native timber, an environmentally destructive practice banned by the Government, has almost completely ceased as a result of improving livelihoods from tree nurseries and vegetable growing.

In terms of political or institutional capital for farmers, the project has been successful in facilitating farmer groups to become part of the planning and development process of local government. By facilitating farmer groups to be properly organised constitutionally and registered with the Department of Labour and Employment (DOLE), the farmer groups have been able to access local government programs, receive grants and make inputs into the Barangay Development Council planning process, which ensures an ongoing political commitment to their program activities.

Extension agency involvement and ownership

In almost all sites, there have been noticeable changes in the attitudes and approaches of the municipal LGUs, which have the primary responsibility for extension services devolved from the national government. Examples include:

- In South Cotabato, the City Environment and Natural Resources Office (CENRO) of the Koronadal City Municipal Local Government has re-tooled an existing community tree growing program as a result of involvement in AMAEP.
- In Zamboanga Sibugay, the project has been able to reverse negative long-held perceptions by the Ipil Municipal Agriculture Office about the safety of visiting and working with farmers in one of the more remote barangays. Interestingly in early 2017, both the Koronadal City and Ipil Municipal Governments developed Memoranda of Agreement (MOAs) to endorse the LIFE Model in their programs.
- In Maguindanao, the project was able to broker a special three-way partnership between the project, the Ampatuan Municipal LGU and the Philippine Coconut Authority (PCA) to make PCA programs available to farmers. Because the PCA programs are only available to viable farmer groups with at least 50 members, the project's focus on farmer group development has been instrumental in not only getting the required farmer group numbers, but also strengthening the capacity of the groups to manage an effective ongoing relationship with PCA.

Of the more than 25 pilot sites, there was only one instance where the LIFE Model lacked traction with a relatively low level of participation by farmers. We are very mindful of the need to reflect on this. The group in question was an IP group in Maguindanao and perhaps highlights the greater difficulty of achieving extension success in IP communities that are highly conflict-vulnerable. Our reflection concluded that the lack of participation of farmers was primarily due to either a poor identification of the relevant leaders and power brokers (and engagement with them), or a lack of understanding about the constraints and drivers to livelihood improvement in highly disadvantaged communities.

9.3 Community impacts – now and in 5 years

9.3.1 Economic impacts

The research has shown that technical innovations introduced by the project in response to identified farmer needs had a significant economic benefit. These innovations were primarily vegetable growing, cacao-based agroforestry, and nursery production of fruit and timber trees. These innovations provided for a higher, more diverse, and more resilient income stream compared to the previously predominant single income stream from activities such as corn monocropping.

Active participation of farmers in the new livelihood activities ranged from 45 to 100% across all the farmer groups, with most of the groups exceeding 80% participation. From a range of published and unpublished case studies, the extent of the economic benefit from tree nurseries was about a 10 to 20% increase in farmers' annual income (return on investment of 69 to 225%). Similarly, the increase in farmers' annual income from vegetable growing ranged from about 20 to 69% with a return on investment of 96 to 420%.

Of note is the positive economic, health and wellbeing value of home or container gardens. These gardens were apparent in many of the AMAEP studies i.e. the container gardens of the 4P beneficiaries, Sitio Kataputan, Ipil, Zamboanga, and provide nutritious food for the family and an added source of income or barter for the household. The gardens are often small plots of land or container gardens located close to the family home for convenience and security and can be a mix of vegetables, fruits, spices, herbs, and medicinal plants. Home gardens became even more significant during the COVID pandemic when lockdown applied and food shortages occurred.

9.3.2 Social impacts

In Ipil (Zamboanga Sibugay), which is a community of mixed Muslim, Christian and IP farmers, our baseline research showed that there was very little trust and cooperation between the groups when the project commenced. Now, as a result of the frequent exchanges and interactions between the groups in pursuing livelihood improvements, our research has shown a significant increase in the level of trust, which breaks down previous prejudices and increases the level of cooperation and community action.

The value of this social capital was demonstrated in our study of 185 households across the three original AMAEP sites in Zamboanga Sibugay, Maguindanao and South Cotabato. The study showed a clear correlation between social capital and economic welfare, with households possessing higher social capital having higher income. The correlation between social capital and economic welfare supports our principle of agricultural extension with a strong social capital element, so that that there is convergence between economic and social outcomes.

Our research has also identified the vital role that women play in building social capital and achieving a more peaceful community. While women are often unrecognised by formal structures, they are recognised informally by their local communities as negotiators, mediators, and advisers in conflict resolution. Our research verified that women's communication and negotiation skills provide a less-threatening means of engaging with previously untrusted groups, and they have much greater ability to listen and provide appropriate advice to both men and families. Significantly from a conflict perspective, women are more encouraging about getting involved in activities that promote cooperation and peace.

Surveys of farmer groups conducted approximately two years after initial engagement also showed a clear improvement in family nutrition, school education, and other welfare indicators.

9.4 Communication and dissemination activities

During the last year of the project Noel Vock, supported by the project team, collated findings and learnings into a LIFE Package. The LIFE Package consisted of three components: 1) Reference guide book, 2) Video Library and 3) Training Manual.

The reference book is titled The Facts of LIFE (Livelihood Improvement through Facilitated Extension) - An introduction to a new model of agricultural extension for conflict-vulnerable areas of the Philippines. Over six chapters the Facts of LIFE covered the conflict situation in Mindanao, the impacts of conflict, considerations for designing effective extension programs for conflict areas, how the new LIFE model was developed, how it works, and the outcomes and impacts it has achieved. The book is animated by 22 'LIFE stories' from farmers, farmer leaders, community facilitators, local government officials, government agency staff, researchers and academics. Each LIFE story is linked via a QR code to an online video library where each testimonial can be viewed in a more visual manner via a smart phone or tablet.

The second component is an on-line video library called Visions of LIFE, which documents 22 LIFE stories of the experiences of farmers, extension officers, and project partners. The videos are located at (www.lifevideos.org).

The third component of the LIFE package is a training manual titled Training for LIFE. This brings together the detail of all of the tools used in implementing the Model – for example, how to plan and conduct a farmer needs analysis workshop, and how to get the most of an inspirational farmer cross visit. If you have been inspired by the book and video library, this will provide you with the detailed 'how-to' on rolling out the Model.

The LIFE Package was formally launched by the Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (PCAARRD) during their 10th Anniversary celebrations on June 22, 2021. The anniversary celebrations featured the webinar titled "International Forum on LIFE (Livelihood Improvement through Facilitated Extension (LIFE) Model".

The Forum showcased the development and implementation of LIFE Model and highlighted its value and relevance to the Philippine farmers, local and regional agencies and a wider national/international audience. The Forum also presented how LIFE benefitted Philippine communities, and featured lessons and insights from those who had implemented the model including farmer groups, agency extension officers and others.

The event was a collaboration among DOST-PCAARRD, the Australian Centre for Agricultural Research (ACIAR), Royal Melbourne Institute of Technology (RMIT), Landcare Foundation of the Philippines, Inc. (LFPI), University of the Philippines Los Banos and University of the Philippines Mindanao.

Other communication and dissemination activities include:

Website

ACIAR Mindanao Agricultural Extension Project (AMAEP):
https://sites.google.com/site/improvedextensionproject/home

Research Briefs

Web link: https://sites.google.com/site/improvedextensionproject/publications/policy-briefs

No. 1 Trust games: A new way to measure social capital. How the trust game method was used in a conflict-vulnerable area in Mindanao, Philippines

No. 2 Social capital and economic welfare: A study on the relationship between social capital and economic welfare

No. 3 The economic cost of conflict in selected regions in Mindanao, Philippines

No. 4 Functioning farmer groups are important for agricultural extension

No. 5 Women's role in Mindanao peace building

No. 6 Livelihood improvements: Scaling up and out in the Philippines

No. 7 Is agricultural extension a good investment?

No. 8 Development of an extension model relevant to conflict areas

No. 9 Developing and measuring a set of social capital indicators

Videos

1. LIFE - A new agricultural extension approach for conflict-vulnerable areas of Mindanao

Web link: https://sites.google.com/site/improvedextensionproject/publications/other-project-reports

2.Visions of LIFE - the LIFE video library

Web link: www.lifevideos.org

Conference and Seminar presentations:

Johnson, M., *The EU's Role in the Implementation of the Sustainable Development Goals in Asia Pacific* 17/07/2017, EU Centre on Shared Complex Challenges, University of Melbourne

Vock, N., Carusos, E., *Retooling agricultural extension for conflict-affected areas of the southern Philippines,* 13/9/17 2017- GFRAS-APEN International Conference, Townsville

Johnson, M & Carusos,, E. *Lessons from the field: mitigation and vulnerable communities,* 5/11/17 First International Conference of Landcare Studies - Global Resilience through Local Self-reliance - the Landcare Model

Fuentes, ASY., *Training agricultural technicians as effective extension providers in conflict-affected areas of Mindanao*, 7/11/17, 25th National Fruit Symposium, Palawan, Philippines - hosted by Philippine Fruit Association

Johnson, M., Zero Hunger, 26/2/19, RMIT University: Jean Monnet Sustainable Development Goals Network Seminar Series: Zero Hunger

Fuentes, A S Y., & Johnson M., *Farms not arms: the role of women leaders in conflict vulnerable communities*,2/4/19, Seeds of Change: Gender Equality through Agricultural Research for Development, University of Canberra, Canberra

Johnson, M., *Local action: Mindanao Case Study*, 11/6/19, Nanyang Technological University, EU Centre, Singapore, Jean Monnet Sustainable Development Goals Network Seminar Series

Cordero, N, *Landcare Lessons Philippines*, 11/10/2018, Australian Landcare International

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Predo, C., Menz K., and Menguito A. *Farm and Institutional Impacts of the Livelihood Improvement through Facilitated Extension (LIFE) Model in Conflict-Vulnerable Areas in Mindanao Philippines*, 14/11/19, International Conference on Agri-Business Economics Management, School of Management, University of Philippines, Mindanao

Media

ACIAR Partners Magazine, ACIAR, Issue 3 2020ACIAR
Web link: https://aciar.gov.au/publication/partners-magazine/partners-magazine-2020-issue-3
ACIAR Annual Review 2020-21 Case Study: bringing new LIFE to conflict areas ACIAR
Web link: https://www.aciar.gov.au/publication/corporate-publications/aciar-annual-review-2020-21

ACIAR News and Media Blog: Andrew Campbell, The Essence of Landcare Flourishing in the Philippines, 28 August 2018
https://www.aciar.gov.au/media-search/blogs/essence-landcare-flourishing-philippines

10 Conclusions and recommendations

10.1 Conclusions

Two significant events marked the last two years of the AMAEP project. An eighteen month El Nino driven drought had impacted Mindanao farmers resulting in total crop failure, particularly project sites in Maguindanao, and the 2020 COVID-19 pandemic broke out worldwide. These two events greatly impacted on communities and partners in the project sites. Field work was suspended as travel restrictions came into force. Yet AMAEP and PULL facilitators continued to liaise with their project partners and support their communities facilitating relief activities through the local networks.

This is testament to the strength and depth of the networks and relationships that existed and were further developed during the eight year AMAEP project.

The LIFE model has now been successfully applied in 26 communities in the provinces of Zamboanga Sibugay, Maguindanao and South Cotabato. Its success is evident by an increase in farmers' incomes of up to 80%; greatly improved trust and cooperation between previously disparate Muslim, Christian and Indigenous Peoples communities; and widespread interest in and adoption of the model by barangay and municipal local government units, civil society organisations, education institutes, government and non-government organisations.

Local decision-making is critical to livelihood improvement. Accordingly, a place-based process, such as community facilitation, provides the mechanism required for analysis of social, cultural, economic, and environmental conditions and the relationships and interconnections of people and place. This increases the likelihood of achieving the desired local outcomes that can contribute to positive transformation.

We discuss the important concept of community-based development, which occupies much of the narrative on extension in conflict-vulnerable areas because it is widely used and accepted by aid programs. We propose community-based extension.

With new extension models, traditional methods of measurement need to be rethought as interventions result in multiple outcomes and impacts, that occur in different timeframes and across scales. Furthermore, as impacts are likely to be defined, valued, and experienced differently by individuals and institutions, more inclusive approaches are required to ensure equitable and sustainable outcomes.

The use of multi-purpose indicators to evaluate progress reflects the reality of local conditions. The limitation of indicators is that they can only be approximates of what the future may look like. To gauge progress monitoring and evaluation needs to establish causal links between intervention and impact as there could be indirect influences that need to be identified. This can be done during project design by developing a Theory of Change framework. Every stage of the monitoring, evaluation and learning process should be cyclical and participatory. It is only through ongoing review and reflection that learning can take place and people can form ideas and consensus.

Over the eight-year life of AMAEP, monitoring and evaluation activities morphed from slightly siloed approaches i.e. baseline studies conducted by the researchers, to teams of investigators that tackled issues collaboratively. This was a gradual process that developed as relationships strengthened, and we became more aware and interested in each other's work. At the heart of this was a growing consciousness that respected the diversity of backgrounds and experiences. The researchers, farmers, facilitators, local extension officers and education providers worked collegiately from a place of common interest – we started to research and measure what we collectively valued.

The project offers a set of principles that we believe are important for designing extension programs for conflict-vulnerable communities. These include the importance and value of

the facilitation approach; the advantage of decentralised, participatory, market-driven extension over rigid and hierarchical approaches; building on existing systems; the importance of strengthening local institutions; the value of working with groups; the importance of social capital; and the need to integrate gender into the mainstream of the process in a way that addresses the needs of both women and men.

10.2 Recommendations

This research project developed, evaluated and refined a new agricultural extension model – the LIFE model – specifically for conflict areas of Mindanao. The LIFE model has been tested and adopted at local level through the barangay councils and local government agencies, regionally through civil society organisations and education institutions, and at national level through the endorsement of both the Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (PCAARRD), the Department of Agriculture – Agriculture Training Authority (DA-ATI) and the University of the Philippines Mindanao.

The LIFE Model was successfully trialled by the Consortium of Bangsamoro Civil Societies (CBCS) in a pilot study of scaling up in Saniag, Ampatuan, where CBCS identified the value of the LIFE Model as a combined livelihood improvement and peacebuilding program.

The principles of the LIFE model are universal which explains the adoption of the model by non-agriculture agencies such as the Department of Social Welfare and Development in Zamboanga Sibugay.

And the success of the model is such that the DFAT Manila office is piloting the model in an 18-month project and PCAARRD is considering a Phase Two of the PULL project.

Based on the above we recommend that:

- Through high level dialogue ACIAR recommends the LIFE model to DFAT as a tested extension model for development. This would be in the context of taking the broader LIFE concept forward not just as a project. As LIFE was developed in the setting of conflict there is great potential to extend the model to other Asian settings, for example Sri Lanka. Furthermore, based on the Mindanao experience of quick uptake, the model might also be used in disaster mitigation or recovery contexts.

- ACIAR continue to support PCAARRD's ongoing involvement with the model through the SSS-2019-140 Landcare - an agricultural extension and community development model at district and national scale in Fiji project.

- ACIAR support the institutionalisation of the LIFE model through mentoring and training of institutional partners, for example the University of the Philippines Mindanao, to build their capacity to implement and further develop the LIFE model.

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12 Appendixes

12.1 Appendix 1: Project Logic