

## Retooling agricultural extension for conflict-affected areas of the southern Philippines

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**Abstract.** Many communities in Mindanao in the southern Philippines struggle with a range of religious, political and cultural conflicts. As a result, farming households face daily challenges in maintaining and improving their livelihoods. From previous research in more stable communities of Mindanao, it has been shown that certain types of community-based extension can rapidly improve livelihoods of farming households. The question was – could these approaches be retooled to be effective in conflict-affected areas? This question is being answered by a team of Australian and Philippines research and extension specialists working together under a project funded by the Australian Centre for International Agricultural Research (ACIAR). Commencing in 2014, the team developed a new extension model, which is being tested through a process of action research in six conflict-affected pilot communities in western Mindanao. Research to date indicates a rapid and significant improvement in the livelihoods of participating farmers.

**Keywords:** Mindanao, farmers, livelihoods, social capital, development

### Introduction

Mindanao in the southern Philippines has long been a hot-spot for conflict, which we define as 'disruption to peace and order at a community and/or regional level affecting the normal pursuit of livelihoods'. The basis for the conflict in Mindanao is complex involving a range of often-overlapping religious, ideological and cultural divisions. Interestingly, the primarily ideological conflict in western Mindanao involving the Moro quest for self-determination has the somewhat unenviable reputation of being the second-oldest conflict in the world (Schiavo-Campo & Judd 2005). While the conflicts are more localised than general, their impacts are felt more widely with the result that the reputation and potential of Mindanao as a stable and productive sub-region of the Philippines is often significantly compromised.

The impact of conflict on the livelihoods of farming families is known to be pervasive, although there is a dearth of micro-level documentation. Recent unpublished research in western Mindanao, involving the authors, throws some light on these impacts. This research identified the impacts on farmers to be 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 because 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. As might be expected, social impacts were less important under lower levels of conflict.

Previous research conducted by the Australian Centre for International Agricultural Research (ACIAR) in more stable areas of Mindanao has highlighted how certain types of community-based agricultural extension methods derived predominantly from the landcare concept can rapidly enhance agricultural livelihoods through improving both farmer-based learning networks and community social capital (Cramb 2007; Newby & Cramb 2011). This research established a platform from which a broader application of the extension methods into other areas of Mindanao was possible. A key step in this process was a small pilot program conducted from 2007 to 2009 in the remote conflict-affected community of Maalisbong, Palimbang, Sultan Kudarat, in western Mindanao. This program consisted of a livelihood-improvement extension program for farmers involving community consultation, farmer-based technical training, cross-visits to showcase farmers, development of a communal farm learning site and strengthening ties with the local Peoples Organisation and other community development agencies. This relatively short and inexpensive program produced some excellent results and anecdotally demonstrated the promise of facilitated community-based extension methods in rapidly achieving improved livelihoods in isolated conflict-prone communities.

Subsequently, in late 2013, a new ACIAR project commenced, involving Australian and Filipino researchers, to build on this knowledge in developing an extension model suitable for conflict-affected areas, and then testing this model through a process of action research in pilot sites in

the conflict-affected areas of western Mindanao. The objective was to evaluate the extension model for its ability to rapidly improve farmer livelihoods (primarily economic and social livelihoods) and for its potential to be adopted by extension agencies operating in the pilot sites. This paper reviews the relevant literature, describes the development and testing of the extension model and summarises the main findings to date.

### Literature review

There is minimal literature referring to agricultural extension in areas actively or potentially affected by conflict. However, there is a significant volume of literature on community-based development in conflict areas. Here we define community-based development as 'a broad spectrum of development program approaches that channel the benefits of aid directly to the community level and often prioritise participation and ownership by the community members in program implementation'. We can think of our approach in this paper as 'community-based agricultural extension'.

In the review of literature for the project, the following references offered important insights into the key elements of what would be an effective community-based agricultural extension approach or model for conflict areas:

- Robertson (2012) made a succinct summary of the role of agricultural extension in conflict situations. He re-affirmed the value of facilitated extension whereby agents work locally with groups of farmers to identify common problems and develop shared solutions. There is a trend broadening the kinds of knowledge that extension agents are expected to provide. Robertson also argued that decentralised, participatory, market-driven extension systems have been successful in augmenting farmer capabilities, and that a focus on this particular form of development is appropriate in conflict situations, where hierarchical and rigid structures cannot work.
- Jones et al. (2002), referring to South Sudan, declared that, given the constraints imposed by conflict, it is better to build on existing systems (which they say are often surprisingly resilient in the face of conflict) rather than 'impose' solutions which may not be sustainable post-project. They also urge the encouragement (via agricultural extension) of farmer experimentation with potential new technologies, since this can occur more or less independently of conflict.
- Longley, Christoplos & Slaymaker (2006) report on how aid more broadly can best be used to support rural livelihoods in conflict situations. Specifically, their report is concerned with how international actors might best support the agricultural component of rural livelihoods. In their view, 'disaster relief' (for example, food aid) is not enough in situations of chronic conflict, and there is a need to also support livelihoods from a more ongoing perspective. This is particularly so in the agricultural sector, where the response is often to provide just material inputs such as seeds and tools.
- Korf & Bauer (2002) urge care to avoid excessive dependency in conflict-affected areas. They argue that institutional capacity building with a strong level of community participation is a priority to ensure that services can be managed even under constraining conditions. Therefore, amongst other things, they conclude that partner institutions should be strengthened whilst increasing the self-help capacity of the local population, and there should be a balance between process and output – in our case meaning a balance between improved extension capacity and livelihood improvement for farmers.
- Echoing some of the above points in relation to extension in East Africa is a World Bank report (Schwartz & Kampen 1992). In that report, the Bank reiterates the need that to expand their footprint, field extension staff should place much greater emphasis on providing services to groups of farmers. They suggest that the issue of gender should be brought into the mainstream of adaptive research and extension. Finally, but of special relevance to our situation, farmers need to be closely involved in selecting, supporting and evaluating extension staff.
- Ferroni & Zhao (2012) describe a community-based process in India where an NGO, Pradan, has been commissioned by the Indian government to promote self-help groups in an area subject to extremist groups. It was felt that an NGO may find it easier to operate, encountering less resistance from the extremist groups, in comparison to a government agency.

With specific reference to the Philippines, the following references offered further insights into effective community-based agricultural extension systems for conflict areas:

- The success or otherwise of community-based development within Mindanao conflict zones was studied in some detail in a recent report from the Asia Foundation (Parks et al. 2013). The report noted that participatory forms of community-based approaches have the potential to help reduce intra-community violent conflict by inculcating participatory practices and joint

problem solving. One of the reasons why community-based 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 key findings from the study that are relevant to our project research are:

- *Ensure flexibility and adaptation of project designs.* Conflict dynamics in the Philippines are complex, diverse, multilayered, and localised. 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.
- *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 level. Experience has shown that local conflict analysis is feasible for an extensive sample population.
- *Collect evidence of impact especially transformative impacts.* Robust monitoring and impact analysis of transformative outcomes (as well as development outcomes) should be undertaken. Transformative outcomes include strengthening local mechanisms and capacities for problem solving and collective action. Projects should accurately define and measure the most relevant features of their projects.
- Social capital, which we define in this paper as 'social relations that are productive and that allow individuals and groups to improve their (economic) wellbeing', is clearly a key component of effective community-based agricultural extension in conflict areas, where isolation is a consequence of conflict. Agricultural extension methods that have been derived from landcare approaches used in Australia and the Philippines (Landcare Foundation of the Philippines 2009) have a strong focus on building social capital. Local landcare groups have been able to generate considerable social capital which has then been mobilised for the creation of new and innovative solutions to their livelihood problems (Sobels, Curtis & Lockie 2001; Fien & Skoien 2002; Cramb 2007). In practical terms, the Philippines landcare experience led to improved agricultural and economic productivity, increased levels of trust, better networks, and an enhanced capacity to work collectively for mutual gain. All of these are considered potentially important for effective agricultural development in conflict areas.

In summary, the literature review provides a framework for defining the principles that should underpin an extension model in conflict-affected areas. Key aspects include being community based with a strong social capital element.

## **Methods**

The research in this paper was made possible through a project funded by the Australian Centre for International Agricultural Research (ACIAR). The project is led by RMIT University in Melbourne, Australia with three Philippines research and extension partner agencies – Landcare Foundation of the Philippines Inc (LFPI), University of the Philippines Los Banos (UPLB) and University of the Philippines Mindanao (UPMin). The research team consists of three RMIT staff with specialist skills in extension, sociology and economics, which are matched with three Filipino researchers – one in each of the three Philippines partner agencies.

## **Research sites**

Three conflict-affected sites in western Mindanao were chosen for the first round of testing of the new community-based extension model. The three sites were chosen in consultation with regional and local stakeholders and represented three different settings to provide as wide a testing base as possible for the model. The sites and settings are listed in Table 1.

Note that although the three sites represented different religious/cultural settings as well as different levels of perceived conflict, the research was not aimed at comparing responses or determining whether the model worked better in one setting or another – it was purely aimed at testing the model in at least three different conflict-affected settings.

**Table 1. Site settings**

Setting	Sites		
	Zamboanga Sibugay Municipality of Ipil	Maguindanao Municipality of Ampatuan	South Cotabato Municipality of Koronadal
Estimated risk of conflict	Medium	High	Low
Religious or cultural identity	Predominantly Christian	Predominantly Muslim	Predominantly indigenous (B'laan)
Institutional or political significance	Politically important for peace and development initiatives for the wider region outside of the Autonomous Region of Muslim Mindanao (ARMM)	Centre of ARMM and close to heartland of MILF	Site of a number of community-based development initiatives targeted at Indigenous Peoples (IP) communities

### ***Development of the community-based extension model – Stage 1***

The first step in developing the new community-based extension model was to carefully review the experiences of previous ACIAR projects in Mindanao to identify key principles that would underpin the new model. Significant in this step was the published work of Cramb (2006; 2007), Cramb et al. (2007), Newby & Cramb (2011), Landcare Foundation of the Philippines Inc (2009) and Vock (2015). This review identified 20 key principles of an effective extension model for conflict-affected areas. The review also identified three strategies for delivering the program under which the 20 principles could be effectively grouped. Importantly, it was considered that the three strategies were all equally important and needed to be always delivered concurrently for outcomes and impacts to be most effective. The 20 principles and three strategies are listed in Table 2.

### ***Appointment of Community Facilitators at research sites***

The first 'field' step was to appoint Community Facilitators at each of the research sites under the primary implementation partner, LFPI. We used the term 'Community Facilitators' to emphasise both the community-based element of the role and the participatory facilitation emphasis of the work. Because trust and empathy with the case study communities was considered such an important issue in conflict areas, feedback from the research site communities on the selection of the community facilitators was first sought and then selection criteria established. The selection criteria involved not only the necessary skills set, but that the facilitators would be resident in the sites, have a good reputation and be regarded as credible leaders within their communities. Both men and women were encouraged to apply.

Two community facilitators were subsequently appointed at each of the three research sites under the management of a Project Manager employed by LFPI. Of the six staff, four were male and two were female. The deployment of two staff at each site was to improve team work, broaden the skills base available and improve the security for staff in the field. The recruitment and deployment process included orientation and training based on an individual, needs-based, ongoing training plan for each community facilitator.

The intention was for the community facilitators to undertake most of the on-ground extension activities as well as overseeing and participating in (but not necessarily masterminding) the research fieldwork. This was to ensure that the research specialists from RMIT, LFPI, UPLB and UPMin, as well as technical expertise, would be coordinated through these community facilitators. This was to both facilitate management of security and prevent the project presenting a 'disjointed' front to farmers – considered an important issue in the ongoing development of trust and empathy with communities in conflict areas.

**Table 2. Key extension principles under each of three strategies**

<b>Strategy 1: Improving farmer access to technical innovations</b>	<b>Strategy 2: Building community social capital</b>	<b>Strategy 3: Collaborating closely with local institutional partners</b>
<ul style="list-style-type: none"> <li>Facilitating change rather than leading or 'imposing' it</li> <li>Getting farmers to take the major responsibility for decision-making – deciding their own priorities and goals</li> <li>Using farmer centred training and learning – learning by doing, learning from peers and learning through 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 new technologies and deployment of farmer facilitators)</li> <li>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</li> <li>Using communication processes that are relevant to farmers and most effective in conflict-prone areas (e.g. cell phones)</li> <li>Improving both the farm production system and the linkage between farmers and markets</li> </ul>	<ul style="list-style-type: none"> <li>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</li> <li>Using special group-based learning processes to enhance longer-term social capital e.g. cross visits involving farmers and LGU officials</li> <li>Facilitating farmer groups to manage their own futures by becoming part of the formal LGU planning and development process (Barangay and Municipal Development Plans)</li> <li>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</li> <li>Carefully studying gender issues as part of the adaptive research and as part of the development of more conflict-resilient extension systems</li> <li>Implementing our programs at all times with a deep respect for, and sensitivity to, the diverse ethnic and cultural values of the target communities</li> <li>Analysing all project interventions against an appropriate measure of trust and consumer confidence</li> <li>Maintaining a strong local presence in the community e.g. activities within the site – not remote; facilitators embedded within the community</li> </ul>	<ul style="list-style-type: none"> <li>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)</li> <li>Regularly communicating with project partners on activities and outcomes, even where an agency does not appear to be particularly interested</li> <li>Using communication processes that are relevant to agencies in the partnership (may require collaborative identification of these)</li> <li>Seeking regular feedback from partner agencies on the performance of the project and the nature of agency involvement</li> <li>Paying particular attention to training and other processes to build the service and decision-making capacity of extension agency personnel</li> <li>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)</li> </ul>

### ***Development of the community-based extension model – Stage 2***

Once the community facilitators were in place, the project team then set about developing the new community-based extension model for implementation at the research sites, paying attention to the principles and strategies mentioned above. The model, subsequently named the LIFE (Livelihood Improvement through Facilitated Extension) Model, consisted of 15 steps, and is detailed in Table 3. Step 5 in the model (baseline studies) has been documented elsewhere (Johnson et al. 2014a; Johnson et al. 2014b; Johnson et al. 2014c). Since the project and model development are ongoing, no final baseline study has been undertaken for comparative purposes. Instead, various interim evaluative surveys have been undertaken to help determine progress and future directions (e.g. Menquito et al. 2017; 2018).



**Table 3. The LIFE Model**

<ol style="list-style-type: none"> <li>1. Appoint/identify/recruit an appropriate Community Facilitator (new appointment or drawn from existing institutional staff).</li> <li>2. Train and orientate the Facilitator (based on training needs analysis and a set of core modules including communication and safety in the field).</li> <li>3. Identify priority institutional stakeholders (LGUs, NGOs, other agencies) – agencies with which regular engagement is necessary to leverage the best outcomes; identify appropriate point persons within priority institutions.</li> <li>4. Consult with relevant LGU and other agencies (to inform them about intentions, to seek support, identify key institutional collaborators, gather important insights into farmers and farmer groups).</li> <li>5. Improve and document the understanding of the farmers and their livelihood improvement issues (from a baseline survey through to primary and secondary data gathering).</li> <li>6. Initial engagement with farmers (in their locality) – to build trust (no hidden agendas); identify farmer leaders and 'lines of command' (IP communities); clarify farmer groups because of the inherent advantages of working with farmers in groups.</li> <li>7. Map groups as to their relevance and influence – and from this identify the best farmer groups to work with – if no groups suitable, form an appropriate group/s.</li> <li>8. Engage with farmer groups (in their own locality) to orientate them to the process and seek input – similarly with key institutional partners.</li> <li>9. Group workshop of farmers and institutional partners to identify main farmer drivers, needs and preferred ways of addressing needs – in order to build farmer ownership.</li> <li>10. Group tour of farmers and institutional partners to innovators relevant to their primary needs to inspire them with ideas and possibilities.</li> <li>11. Implementation of livelihood development activities relevant to primary needs - emphasis on farmer-led and involvement of both men and women.</li> <li>12. In implementation of activities, regularly (at least every 3 months) review and discuss ways to improve social capital, group health, gender equity and farmer leadership.</li> <li>13. Where possible and appropriate, train and deploy farmer facilitators – innovative farmers who are trained to maximise local community learning through farmer-to-farmer exchange.</li> <li>14. Regularly keep institutional partners informed and where possible involved in activities (planned communication program necessary).</li> <li>15. Regularly monitor and record changes at both farmer and institutional levels (economic, social and human capital changes) and reflect on changes necessary to improve outcomes (action research methodology) – important in ensuring the project is achieving its objectives as well as identifying the important factors in building self-reliance in farmer groups and institutional partners.</li> </ol>
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### ***Testing of the community-based extension model in conflict-affected areas***

Once the implementation of the LIFE Model was commenced in early 2014, a process was put in place to assess its effectiveness. As mentioned earlier in the paper, the primary parameter was the improvement of livelihoods for participating farmers. This involved consideration of the improvement of two primary livelihood aspects – economic and social – as these were regarded as the highest priorities for disadvantaged communities in conflict-affected areas. However, it was resolved to also monitor other livelihood improvements, such as human, environmental and political, in the process of monitoring farmer progress. As well as assessing improvement in economic and social livelihoods, the speed of change was also assessed at a macro level.

A secondary parameter for assessment of the effectiveness of the Model was the response of local extension agencies, particularly their interest in using the Model in their ongoing programs, should it prove successful. This was obviously an important issue in ensuring institutional sustainability of the Model beyond the end of the project.

The assessment of the Model involved two key processes:

***Action Research*** A cycle of planning, acting, reflecting and re-planning was used to regularly review the rollout of the Model and incrementally improve its performance and implementation. This was primarily undertaken by the community facilitators and involved them noting issues in their diaries and reporting to six-monthly whole-of-team review meetings, where reflection and re-planning were undertaken. On two occasions, these reviews included external personnel from partner agencies and a specialist advisory group consisting of representatives from important conflict area agencies.

***Specific targeted research on livelihood changes and impacts*** This was primarily undertaken by the research team, working with the community facilitators. It involved a range of techniques including surveys of farmers and extension agencies, analysis of costs and returns of farm enterprises, assessment of social capital, and special farmer group surveys at a point when the

major engagement between the farmer group and community facilitators was concluded approximately two years after commencement. The assessment of social capital included standard measures such as membership of local farmer groups and duration of those memberships, as well as several of what we consider 'new' measures such as assessment of group health and the assessment of trust and reciprocity through a concept known as 'trust games'.

In mid-2015, based on the initial results from the primary research sites and the incremental improvement of the Model because of the Action Research, testing was expanded to three new barangays within the target municipalities.

## Results

### ***The LIFE Model***

From the regular reviews of the Model under the Action Research process, across almost three years at the three initial sites and two years at the three expansion sites, the community facilitators have received positive feedback from the farmers, local extension agencies and visitors to the sites. The project team has also received positive feedback from advisers to the project representing conflict-area agencies and from extension program managers in the Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (PCAARRD), the agency mandated by the Philippines Government to develop innovative extension modalities and strengthen alliances with extension stakeholders. In fact, PCAARRD indicated that the LIFE Model was in their view the only ongoing agricultural extension modality specifically targeted at conflict areas (M Carlos & A Ramos 2016, pers. comm., 13 September). In this context, PCAARRD indicated that the Model should have wide appeal and relevance for the many agencies looking to work in the region once the peace process is resolved.

From the feedback and regular review, improvements incorporated into the Model included:

- Better mapping of the existing technology resources relevant to livelihood improvement issues to make best use of available resources and expertise (Step 11 of the Model).
- Broadening of the partnerships beyond the local site level in line with the 'triple helix' concept of partnerships involving public, private and academic sectors (Step 3 of the Model).
- Promoting the project's success stories and impacts more widely, possibly using social media and videos of farmer and local extension agency testimonials (Step 14 of the Model).
- 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 (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).
- Including more clarity in the entire Model on a plan to ensure farmers and local extension agencies are more involved in determining appropriate strategies to achieve sustainability of the process.

### ***Outcomes and impacts***

In general, all but one of the eight targeted farmer groups across the six pilot sites have made rapid and significant improvement in their livelihoods. A summary of these improvements is as follows:

*Economic livelihoods* Research by the project team has found that technical innovations introduced by the project in response to identified farmer needs had a large economic benefit (Menguito et al. 2018). The technical 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 streams 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 the eight farmer groups, with five of the groups exceeding 80% participation. In the two Maguindanao sites (Saravia and Ampatuan) for example, farmers have estimated that they have obtained a 64% increase in incomes and a 108% increase in savings. A paired t-test was used to confirm statistical significance in the analysis. Both income and savings increased (paired t-test:  $P = < 0.001$ ) at 95 percent confidence interval with t values of 6.6 and 5.7, respectively. Similar changes were observed in other sites (e.g. Menguito et al. 2017). The same self assessment survey mentioned above (Menguito et al. 2018), conducted approximately two years after initial engagement, also showed a clear improvement in family nutrition, school education and other welfare indicators.

*Social livelihoods* In Ipil (Zamboanga Sibugay), which is a community of mixed Muslim, Christian and IP farmers, baseline research (Fuentes et al. 2015) 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, there has been an increase in the level of trust, which breaks down previous prejudices and increases the level of cooperation and community action. This is evidenced by farmers visiting each other's farms, sharing advice, and generally helping each other. Farmers have said that this is the first time that many of them have visited a farm in a neighbouring sitio (village).

The value of social capital was demonstrated in a study of 185 households across the three original sites which showed a clear statistically significant relationship between social capital and economic welfare, with households possessing higher social capital having higher consumption (Predo & Menz 2017). Specifically, at the current level of consumption expenditure in the study households, social capital was found to have an economic value equivalent to 14% of current household consumption expenditure. The regression results containing the full range of explanatory variables showed that social capital, household size, and location dummy variables were significant at 5%, 15%, and 1% probability levels, respectively. In this study, the indicators for social capital were membership in local farmers' associations and the duration of those memberships, and the indicator for economic welfare was household consumption expenditure as a proxy for farm income.

Research has also identified the vital role that women play in building social capital and achieving a more peaceful community (Beza et al. 2018). Of note were their communication and negotiation skills, which provided a less threatening means of engaging with previously untrusted groups; their greater ability to listen and provide appropriate advice to men and families; and their greater encouragement to get involved in activities that promote cooperation and peace. In the Magdaup Vegetable Growers Association – a group that has been developed by the project – women see that collaboration across the religious and cultural divides within their group is a key to its success.

*Other livelihoods* In terms of human capital, our project's research has confirmed via self-assessment surveys (Menguito et al. 2018) that farmers have improved their individual knowledge, attitudes, skills and aspirations. For example, members of the Kauran Christian Upland Farmers Association 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 and importantly have recognised the link between training and additional income generation.

In terms of natural capital, the Landcare Foundation 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 previously adopted these practices in other Philippines environments (Vock 2015) 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, 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 all three 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 of the project. Instead of 'buying-in' potted nursery trees from outside sources, CENRO was facilitated to train and contract the local farmers to produce these nursery trees with the obvious advantages of improving farmer livelihoods, reducing freight costs, improving the quality of the trees, and enhancing local ownership of the tree establishment program.



- 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, a special three-way partnership was developed between the project, the Ampatuan municipal LGU and the Philippine Coconut Authority (PCA) to make PCA programs available to farmers. Because the 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.

## Discussion

Given that Mindanao is increasingly seen as the Philippines 'food bowl', agricultural development within the region will remain a major priority for the Philippines Government. The success of that development will rely heavily on effective agricultural extension services. And given that almost half of Mindanao is affected by conflict, which has significantly diminished much of the potential agricultural production, it follows that agricultural extension services will have to be effective not only in addressing the disadvantage, but also operating in the face of conflict. The LIFE Model of community-based agricultural extension attempts to address these issues, and so the research on this 're-tooled' model is timely and relevant.

The fact that the LIFE Model was evolved from more than 10 years of previous experience in testing the landcare-based extension process in other parts of Mindanao, it is perhaps not surprising that it appears to have worked well in its first major foray into conflict-affected areas. However, we think there is importance in the fact that the principles and strategies of the approach have this time been much more clearly defined, something that was always a little elusive with the Landcare model, given its wide philosophical base of proponents. We see another advantage was the more purposeful fine-tuning of the LIFE Model through the Action Research process, where the rollout of the Model was strategically and methodically reviewed every six months. This enabled more than seven incremental improvements to be made to the effectiveness and practicability of the Model. An interesting example is the inspirational tour concept, where farmers and local extension agency personnel are facilitated to undertake a short tour to innovative farmers and agencies to inspire them with what is possible. While the benefits of this concept were known from previous projects, it was immediately obvious that the benefits were even more profound for farmers highly disadvantaged by conflict. As a result, the project then incrementally improved this important step with such things as leveraging more out of the travelling partnership between farmers and extension agency personnel, and paying more attention to the social capital dynamics before and after the visit.

It is perhaps the clarity of the Model and the fact that it is not 'set in stone' that has resonated with the extension agencies involved in the project sites. Clearly they need to be able to see what is different about the LIFE Model, so they can make a valid comparison over existing approaches. The fact that they have made this comparison favourable to the LIFE Model at this early stage is pleasing, but the more important endorsement for us is the determination already by two of the municipal LGUs to deploy the Model in their ongoing programs.

From a farmer perspective, the rapid and extensive change in income levels and the transition of those incomes into livelihood benefits is a strong endorsement of the LIFE Model. From a social capital perspective, there is clear evidence of improving trust and cooperation between previously deeply divided groups within the communities – whether the previous distrust and lack of cooperation had a religious, cultural or political basis. This improved social capital augurs well for the future but the real test of its resilience will come when conflict returns in the form of an issue that divides along these religious, cultural or political lines. While there have been small local issues in two of the sites that have required group solidarity to resolve, it is fair to say that there has not yet been a significant test. The initial research on the role of women in conflict resolution has been informative, particularly the fact that while they are often unrecognised by formal structures, they are recognised informally by their local communities as negotiators, mediators, and advisers in conflict resolution. We believe that further investigation of how this can be effectively integrated into the Model would be beneficial. One of the social successes of the project has been the transformative development of all but one of the farmer groups, who are all now relatively self-motivated and self-sufficient and with excellent partnership support from re-invigorated LGUs.

The Predo and Menz (2017) study, which showed a clear correlation between social capital and economic welfare, supports the project's approach of promoting agricultural extension with a

strong social capital element, thus enabling a convergence between economic and social imperatives.

The lack of success with one group (an IP group) requires further investigation to identify any shortcomings of the LIFE Model for specific IP communities. Here, the lack of participation of farmers may be due to poor identification of the relevant leaders and power brokers, or a lack of understanding about the constraints and drivers to livelihood improvement in highly disadvantaged communities. For the former, mapping of the social dynamics of the IP community may be necessary before serious engagement. For the latter, a better understanding of the disadvantage with a view to formulating a program that first meets farmers' real needs, may be worth investigation.

The nexus between agricultural extension and community-based development discussed early in the paper is interesting, particularly given that there appears to be more community-based development in conflict areas than agricultural extension. While both have a strong focus on social capital and participatory concepts, we believe that it would be interesting to further study the nuances between the two approaches to see if agricultural extension has a particular traction with the predominantly agricultural population of conflict areas. If the LIFE Model is as PCAARRD indicates, the only ongoing agricultural extension modality specifically targeted at conflict areas, it assumes even greater importance, particularly if a significant breakthrough in peace can be achieved and the likely resultant plethora of aid and development agencies come looking for agricultural extension programs with a proven track record.

Finally, as the project begins to test the potential for scaling up the Model, its inherent flexibility and cost need to come under scrutiny. The flexibility issue emanates from a perception that the lead implementing agency – LFPI – as an NGO and long-standing partner in ACIAR projects, is inherently more flexible than most extension agencies. This will ultimately be resolved by testing the Model across a wide spectrum of extension agencies including other NGOs, academic institutions and additional LGUs – currently in progress. The cost issue emanates from a perception that the ACIAR project is much better resourced than most extension programs. To some extent, this has been resolved by a recent benefit-cost analysis of the Model, which showed a good return on investment of Php1.6m of benefits to Php1.1m of costs (Menz et al. 2017). However, this will also need confirmation in the hard-nosed world of extension agency budgets.

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