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# Engaging the local government in research & extension: The ACIAR-ICM-landcare experience

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## ABSTRACT

Agricultural research and extension are important elements for improving agricultural production and food systems. It is said that the enhancement of traditional farming into science-based agriculture requires expeditious transfer of research results from laboratory to field. Agriculture extension was one of the services entrusted to local government from the national government during its decentralization in 1991. The basic premise was they can better design their extension services to best fit local needs because they know more of the local setting. It is a unique service that provides access to small rural poor farmers through non-formal education and information sources. That in turn helps these communities to increase productivity and income, alleviate poverty and improve food security.

The strategic research partnerships between local government, non-government organizations and academic researchers as an innovative mechanism to further define and facilitate extension service delivery are now increasingly recognized. This article provides the narrative of the experiences and lessons in bridging agricultural research and community practices through strategic involvement of the local government in research and extension. The discussion is based on the experience of Landcare Foundation of the Philippines (LFPI), a non-government organization, while implementing the Australian Center for International Agricultural Research (ACIAR) Integrated Crop Management (ICM) Project in Bohol, Philippines.

Keywords: Agricultural Extension, Integrated crop management, Farmers Field School

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## INTRODUCTION

The Integrated Crop Management (ICM) project was a 4-year research and development project, which aimed primarily in increasing vegetable profitability of farmers in Southern Philippines through integrated crop management approach. The ICM approach seeks continuous improvement strategy in vegetable production by evaluating the current management system of selected crops for key constraints and identifying new management options/practices, known to be effective in similar situations for recommendation and testing. The project sites include the provinces of Leyte, Northern Samar, Davao and Bohol that were pre-elected due to high levels of poverty. Collaborating agencies are primarily from the government and academic research institutions from the government of Australia and the Philippines.

Landcare Foundation of the Philippines is one of the implementing agencies responsible in facilitating the engagement between the research team, growers, local government units (LGUs), and farmers in the province of Bohol. Its main role involved community preparations, interactions with LGU for project commitment, and organizing and managing technical training for farmers through farmer's field school. Landcare also took part in establishing “best practices”/demonstration sites of the recommended technologies derived from the project's research activities.

## METHODOLOGY

While the research partner institutions are engaged in furthering research on technologies relative to integrated crop management, Landcare developed and demonstrated an extension modality that aimed for the effective and efficient dissemination/adoption of results of research to the community level. The method was mainly an action research which involved various data collection techniques. These techniques include process documentation, recording of activities and the iterative process of plan-act-reflect type of project implementation. All the information gathered were consolidated and analyzed in this paper. The writers of this article were involved in the actual implementation, thus the analysis was mostly built on writers' views and insights on the various stages of developing the extension approach.

## RESULTS AND DISCUSSION

Agricultural extension is viewed in various ways by different types of people. In the Philippines, it is common among agricultural extensionists to define it as technology diffusion or technology transfer. In this view, it assumes that scientific research activities are the only source of information and does not necessarily recognize the indigenous knowledge that farmers and other key players may have. Menz (2013) cited definition of agricultural extension as proposed by Rogers (1983) as a 'diffusion of innovation' whereby new agricultural technologies were developed by scientists, transferred by extension personnel, and adopted by farmers. At some point, extension can provide feedback to researchers about farmers' problems, the kind of information that researchers often used in developing research projects. They call this approach as the linear model, since it assumes a linear relationship

between research, extension and farmer (Menz 2013).

The onset of participatory approaches opens horizons to explore how agricultural extension works can be further improved. It highlighted the importance of building local capacities and allowing farmers and people on the ground to work with researchers and be active participants in innovating technologies addressing local problems. As Menz (2013) have put it, the role of extension was identified as facilitating the processes of reflective action, learning and decision making by stakeholders. Menz also cited Van den Ban and Hawkins (1996) who explicitly incorporated the idea of extension assisting farmers to make better decisions and clarifying goals. The implementation of the ACIAR-ICM project in Bohol was founded on the latter. It facilitated the creation of the platform where key stakeholders such as farmers, researchers and local government officials could exchange ideas, expertise and insights in developing and adopting technology innovations.

Figure 1 illustrates the process which facilitated the adoption/promotion of technologies at the level of the farmer and institutionalization of the approach within the LGU. It summarizes the key activities undertaken in collaboration with the local government unit in attaining the project objectives.

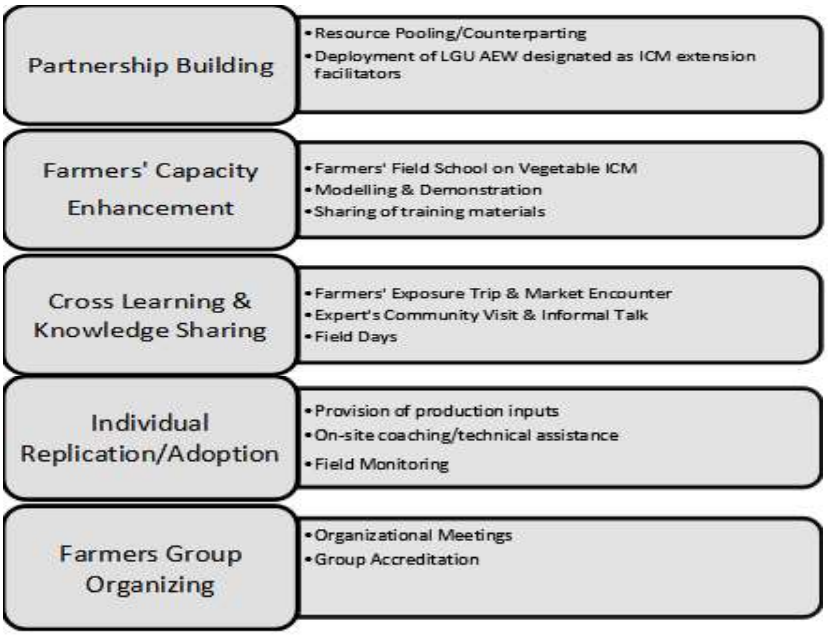


Figure 1. Key Activities Conducted In Implementing ICM Project

***Development of Institutional Partnership***

Establishing partnership with local government is critical for project implementation and to ensure scaling up of interventions. Partnership building activities go through three important stages: *initiating the partnership*, *engaging in actual project cooperation*, and *sustaining the gains of the partnership*.

Scanning of responsive local partners was conducted in the initial phase of the project. Landcare devotes significant time to screen potential partners for

suitability to participate. This includes identifying priority programs within the LGU that is targeted to existing and/or future vegetable production, and targeting LGUs with known capacity for sustaining projects. If these two characteristics are present then seeking LGU "counterpart", financial or in-kind support for the implementation of the Farmers Field School (FFS) is easier.

The actual project cooperation formally started with the signing of memorandum of agreement (MOA) by both parties. It was a binding agreement detailing the roles and responsibilities of the local stakeholders including the farmer cooperators. There have been times, though, that the target LGU had refused to accept the project, not because they were not interested but due to budget limitation for counter-parting. Within this ACIAR project, Landcare have successfully forged partnerships with seven LGUs in Bohol Province (Figure 2). On top of the financial and material counterparts, the partner local governments deployed extension facilitators also to implement the FFS and to work closely with Landcare project staff. These 'Landcare extension facilitators' helped implement the ICM project, receiving modest financial and logistic support from Landcare's ICM funds. Table 1 presents the various forms of supports extended to different project sites provided by corresponding LGUs partnered in the project.

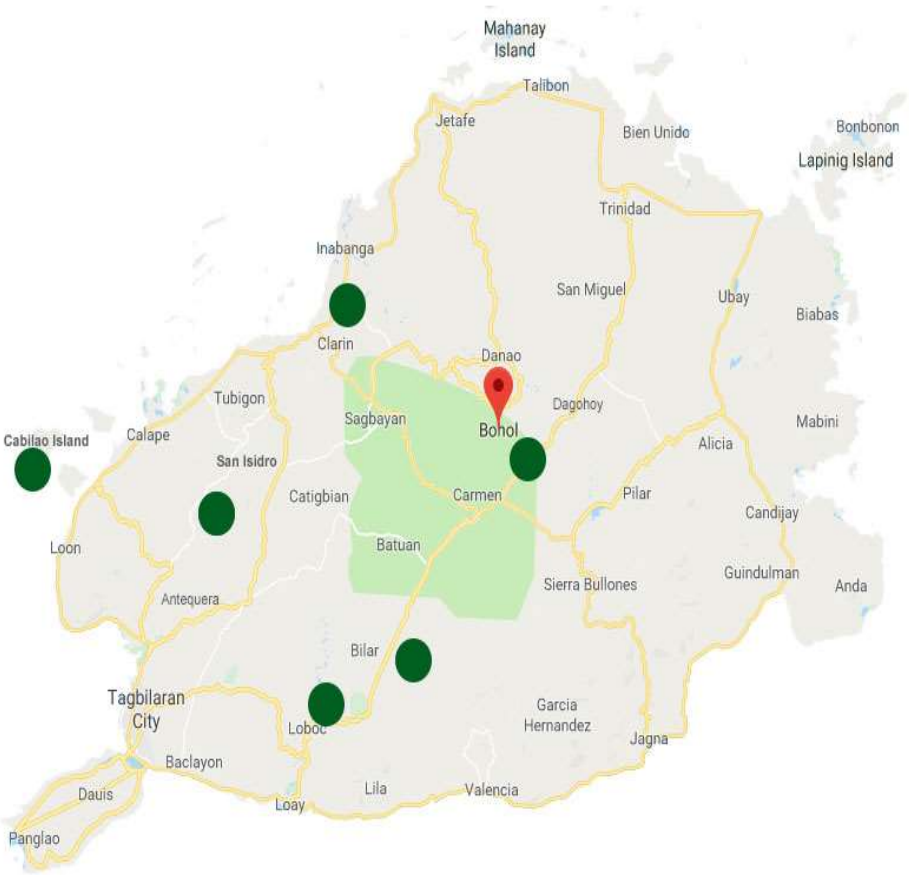


Figure 2. ACIAR-ICM Project Sites in Bohol, Philippines

Table 1. Partner institutions and support extended on project sites

| Name of Institution | Support Extended | Sites involved |
|---|---|---|
| Municipal LGUs | Financial counterparts for production inputs and FFS organization<br><br>Personnel - ICM Extension Facilitator | LGUs of Jagna, Pilar, Batuan, Valencia, San Isidro |
| Barangay LGUs | Training venue and farm inputs<br><br>Financial counterpart for Launching and Graduation | 12 Sites |
| Bohol Agricultural Promotion Center; Department of Agriculture RFO VII | Seeds, Plastic Crates, Drums, Multi Soil Cultivator, Water Pump, Knapsack Sprayer, Sprinkler | Valencia, Jagna, Batuan and Pilar |
| Agricultural Training Institute (ATI) | Training on Farm Business School, Financial Counterpart | Jagna, Pilar, Valencia and Batuan |
| DOLE | Registration to DOLE as requisite in availing/outsourcing community projects | All sites |

Source: LFPI Final Report 2018

### *Farmers' Field Schools as an Extension Process*

FFS is one popular education and extension approach now in place at least in 78 countries (Braun, Jiggins, van den Berg & Snijders 2006). The FFS was developed by the FAO for its integrated pest management program. A participatory method of learning, technology adaptation, and dissemination (FAO 1999) based on adult learning principles such as experimental learning (Davis & Place 2003). Through group interaction, attendees sharpen their decision-making abilities and their leadership, communication and management skills (Van de Fliert 1993, cited in Anderson & Feder 2004)

The main activity implemented in each of participating LGU was organizing FFS to focus on vegetable integrated crop management. The project sites and farmer-cooperators were identified by the LGU, who have also facilitated the conduct of project orientation at the community level.

Landcare organized farmers' field schools (FFS) in training farmers. Landcare adapted the process for ICM vegetable and has developed learning modules and follow-up mechanisms. Part of the FFS process was the setting of community baseline studies, identification of challenges in agriculture system and re-designing the FFS and subsequent field replication to address the challenges identified.

In the FFS, at least 25 farmers, regularly met once a week for the duration of the cropping season, from planting to harvest. In each weekly session, farmers work in groups, conduct field monitoring observation, team building exercises, and discuss special topics (Figure 3). The Landcare staff and LGU-designated ICM extensionists provided technical inputs and facilitation. A demonstration area was also established with each group as common learning area. Preferred vegetable crops were planted in accordance to the recommended agronomic and horticultural practices.

Figure 3. FFS Farmers doing hands-on activities in their learning field

Researchers from partner academic research institutions were also invited as resource persons. Scientists and experts visited the project sites that brought and shared scientific knowledge and techniques to the farmers. On the other hand, problems encountered by farmers' actual experience were also brought to the scientific community to seek recommendation or for further study.

Towards the end of the cropping season, a Farmers' Field Day (FFD) was conducted as a way of reporting the progress of the project. Usually, this was conducted during the start of the harvest season. Local partners and non-FFS farmers were invited to visit the FFS field. The activity was also intended to gain further support from the local officials and to share with other farmers in the community. Another feature of the FFD was the display and selling of vegetable produce from the communal learning area and farmers' adoption field.

Complementing this, were market exposure trips and visits to other FFS group fields. In the process, it allowed farmer cooperators to understand deeper the processes of developing community innovations and learn from the practical experiences of other farmers. The exposure to the marketplace allowed farmers to be informed of the dynamics of the vegetable market and characteristics of the buyers. At the same time, they had opportunities to develop market links with wholesalers and retailers.

As described earlier, one of the important features of FFS as innovated in this project includes the strong link of farmers with the technical researchers. This allowed constant flow of information and two-way communication between farmers and the researchers. The researchers provided information to farmers based on the results of their studies. Farmers on the other hand, provided feedbacks to researchers pertaining to the issues and concerns they encountered in their farming. The researcher in turn, helped address the needs of the farmers in terms of technical guidance and information. At some stage, the farmers also provided inputs to researchers in the conduct of their researches.

Overall, the season-long trainings were an opportunity for both extension facilitators and the farmer-participants to get hands-on experience and gain mastery of methodologies and technologies related to integrated crop production for vegetable. Within the project duration, Landcare has successfully implemented twelve (12) FFS involving four hundred eighty two (482) farmers in 7 municipalities (Table 2). Because of the inputs provided, the rate of individual adoption was considered high at 81.53% and thereby provided additional income for farmers.

Table 2. Project Trained Farmers, and Provided With Input

| Name of Institution | Support Extended | Sites involved |
|---|---|---|
| Municipal LGUs | Financial counterparts for production inputs and FFS organization | LGUs of Jagna, Pilar, Batuan, Valencia, San Isidro |
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Source: LFPI Final Report 2018

### *Facilitating Farmers' Adoption*

The efficiency of most local government's extension delivery programs is oftentimes affected by the budget availability. For example, budget for training would be enough only to cover direct costs for farmers' weekly meeting and

materials to be used in communal learning area. Farmers' adoption might not be fully optimized because it was only very seldom that they have the capital to purchase the inputs required and rarely do the LGUs have enough funds to assist the farmers to purchase inputs. This project did provide input assistance to farmers for adoption.

While the FFS was on-going, the training participants were given production inputs like seeds and fertilizers as start-up capital. The assistance distributed were based on their crop preference and the size of the production area committed. Rate of adoption differs from farmer to farmer across the sites. There were those considered as early adopters who were able to keep the timing of field exercises. Some also started late, while a few were interested only in the training. In general, seventy five percent (75%) of the total farmers trained were able to receive inputs from the project. Minimum production initially allocated by farmer cooperators ranged from 250-1,000 square meters. But as they gained experience most of them expanded their production (Figure 4) as they realized the potential of vegetables as cash crops.

Figure 4. Farmers performing and innovating learned technologies from FFS

Unlike other projects that focus on giving out goods, Landcare opted to set-up community funds for the ICM farmers' groups. Although the project did not require a return on the initial assistance provided, however the group collected the re-payment as revolving capital for their next cropping season. The management of the fund strengthened the farmer organizations and provided a mechanism for small farmers to access credit for vegetable inputs.

Field monitoring and technical advice were provided to support farmers' adoption and research innovation. Extension facilitators regularly conducted field visits to give timely assistance whenever needed.

***Farmer Group Organizing & Strengthening***

Organizing farmers was another important activity carried out by Landcare. This endeavor aimed to bring farmers together even after their FFS for them to form into an interest group to address other issues in their production and livelihood systems. Through regular meetings, farmers were able to discuss and share experiences from the field, initiate plans and participate in the local governance (Figure 5). As a result, these organized groups have had demonstrated improved organizational and business management skills. They now responsibly and regularly conduct meetings and take on other community activities. The community managed its fund to provide micro-financing to its members and/or used in group-buying of farm inputs.

Figure 5. Farmer group formulating plans for their organization

The project had also facilitated the registration of the organized Peoples Organizations (PO) to the government accrediting agency like the Department of Labor & Employment (DOLE) (Table 3). This was an essential requirement in availing livelihood assistance from the government. With the facilitation of the extension facilitators, most ICM farmer groups received complimentary technical assistance and livelihood support from government agencies. Assistance received were in the form of seeds, farm tools and machinery and entrepreneurial advancement training. (Please refer back to Table 1)

Table 3. List of farmer groups organized/strengthened and status of organizations

| Name of Farmers' Group | Status of the Organization & Members |
|---|---|
| Mayana Cutflowers & Vegetable Growers Association (MCVEGA) | DOLE accredited; with communal production area; and operational community fund |
| La Suerte Vegetable Growers Association (LASOVEGA) | DOLE accredited, group input buying; owns farm machinery in common, with operational community fund |
| Cabacnitan Vegetable Growers Association (CVGA) | DOLE accredited, conducted regular meetings and operational community fund |
| La Victoria Vegetable Farmers Association (LVGA) | DOLE accredited, conducted regular meetings and operational community fund |
| Masonoy Vegetable Growers Association (MVGA) | DOLE accredited, conducted regular meetings and operational community fund |
| Boctol Vegetable Growers Association (BVGA) | DOLE accredited; with revolving community fund; expanding membership |
| Rosariohan Vegetable Growers Association (RVGA) | DOLE accredited, group input buying; owns farm machinery in common, with operational community fund |
| San Carlos Vegetable Growers Association (SCVGA) | DOLE accredited, involved in input group buying; owns farm machinery in common, with operational community fund |
| Ilaud Vegetable Growers Association (IVGA) | DOLE accredited and with operational community fund |
| Cambacay Vegetable Growers Association CVGA) | DOLE accredited |

Source: LFPI Final Report 2018

### *Project Milestones*

Over the four years of project implementation, the ACIAR-ICM project in Bohol had successfully facilitated the engagement of seven (7) LGUs. In these engagements, the project had been successful in building the capacities of farmers in improving their farm practices making it more profitable and sustainable. These were achieved through the training inputs provided during FFS and farmers cross visit activities. The summary of accomplishment for 4 years project implementation is presented in Table 4.

Table 4. Summary of accomplishments for 3 years project implementation

| Accomplishments | Number |
|---|---|
| LGU partners | 7 |
| Trained LGU Extension Facilitators | 7 |
| Trained farmers | 482 (180F) |
| Provided with inputs | 369 |
| FFS training conducted | 12 |
| Organized/strengthened farmers' groups | 10 |
| Farmers' cross site Visits | 10 |

In the process of involving the LGU from the beginning, the field personnel developed certain competencies that further enhanced their skills and capacities in delivering extension services. Table 5 reflects the competencies developed, as perceived by the extension facilitators themselves, while engaging the project.

Table 5. Perceived competencies developed by LGU extension facilitators

| Competencies developed with ICM | Impact to delivery of extension services |
|---|---|
| Recommended agronomic and horticultural practices | Integrated in training modules for farmers |
| Pest and diseases identification and management | Holistic approach in providing management/control options to give recommendations to farmers |
| Facilitation skills | Gain more confidence and employed innovative training methodologies |
| Soil and water conservation | Integration of approaches in sustainable upland development programs of LGU |

Source: LFPI ICM Final Report 2018

## SUMMARY AND CONCLUSION

In consonance to the objective to increase vegetable profitability of vegetable production through integrated crop management, Landcare strategically pursued partnership building, developing extension methodologies and undertaking adaptive research while developing social capital for small rural farmers. Among its achievements were:

- Established collaborative partnerships with local government units, academe and research institutions on integrated crop management.
- Partner LGUs provided funding, human resources (extension facilitator) and technical expertise to support farmers' capacity building process, particularly the facilitation of Farmers' Field Schools.

- Enhanced capacity of farmers on integrated crop management and Landcare approach. The most concrete evidence to support this are the individual adoption of farmers on vegetable production for home consumption and as source of additional income. This makes research and extension more meaningful when translated to farmers' economic gain.
- Along the process, the extension facilitators gained competency to deliver extension services.
- Strengthened farmers group. The emergence of legally constituted, functional and organized productive farmer groups working in close collaboration with local government units may have far reaching impact in influencing and scaling up of the project gains to other communities in the province.
- The setting up of community revolving fund in partner farmer organizations as a result of the initial assistance from the ACIAR-PCAARRD supported ICM in Bohol is undoubtedly an important economic milestone that can be attributed to the project.

Based from these experiences, the project through LFPI generated knowledge products which include identification and testing of the extension model effective in promoting new technology innovation such as the ICM. It has also come up with an enhanced FFS design that effectively covered the basic principles and good practices on ICM. Furthermore, it came up with an enhanced way of implementing FFS manifested in the high adoption rate of technologies among farmers. The process, strategies, tools used in the project have been fully implemented. It also identified requirements to institutionalize gains of the project at the level of the LGU and farmers associations. Finally, for LFPI, it has once again tested the versatility of the Landcare approach in doing community development and improving the livelihoods of the farmers.

***Lessons Learned***

Capitalizing on LGUs familiarity with the local setting and direct relationships with farmers to facilitate research adoption was very effective to disseminate useful and practical information best suited to the local rural situation. Furthermore, resource pooling among stakeholders fostered collective ownership of the project ensuring successful implementation.

The setting up of demonstration sites and hands-on experience ensured that farmers can implement what they have just been learned. The project FFS brought in the scientific community and experts to share knowledge and techniques directly to farmers. It also provided a venue where farmers could share to the scientific community problems they encountered, to seek recommendation or for further study. Furthermore, the FFS model served as a community organizing tool through farmers' regular meeting and training together which developed camaraderie and communal interest.

The formation of legal farm organisations provided a mechanism through which the farmers have the capacity and legal identity to establish linkages and engage with other key players in the Philippine agricultural sector.

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