



Australian Government  
Australian Centre for  
International Agricultural Research

# Final report

Small research and development activity

*project*

## Enhancing development outcomes for smallholder farmers through closer collaboration between ACIAR's landcare and other projects

*project number*

ASEM/2009/044

*date published*

November 2012

*prepared by*

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*final report number*

FR2012-31

*ISBN*

978 1 922137 22 7

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*published by*

ACIAR  
GPO Box 1571  
Canberra ACT 2601  
Australia

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# 1 Acknowledgments

The Project Leader would like to sincerely thank the following people for their excellent contributions to the project:

- John Oakeshott (Philippines Horticulture Manager) for facilitating many of the linkages between the Landcare Foundation of the Philippines (LFPI) team and the ACIAR Horticulture Project, providing support for involvement of the LFPI team in Horticulture Project annual workshops, and providing advice and mentoring to the LFPI team;
- LFPI staff Ben-Errol Aspera, Lyndon Arbes, Lorena Loma, Felipe Turnos, Edwin Sardido, Roy Joseph Balane, Evy Elago, Nic Paday, Emily Garcia, Maricynth Pabua and Rose Dilag for the enthusiasm shown in pursuing the objectives of the project, and support provided to the Project Leader;
- David Hall and Irene Kernot (Australian ACIAR Horticulture Project Team Leaders) for encouragement of the LFPI team in a range of project activities, including collaborative team workshops;
- Various staff of the ACIAR Horticulture Project for supporting the LFPI team in collaborative activities and providing technical advice. Particular thanks to Mike Hughes, Peter Treverrow and Nandita Pathania for facilitating and supporting the involvement of Felipe Turnos in a study tour to Vietnam to study potato aeroponic technologies;
- Dr Caroline Lemerle, Dr Gamini Keerthisinghe and Les Baxter (ACIAR Research Program Managers) for their encouragement and support throughout the project of collaborative activities;
- Michelle Sinn (DEEDI ACIAR Projects Coordinator), Janet Williams (ACIAR Program Support Officer) and Debby Maxfield (DEEDI Extension Projects Support Officer) for efficiently managing contracts, acquittals, collaborator payments, travel bookings and many other services for the commissioned agency and the Project Leader.

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## 2 Executive summary

Over ten years and three phases of the Philippines-Australia Landcare Project funded by ACIAR, the landcare approach has continued to demonstrate its effectiveness in improving farmer livelihoods at a rate that has rarely been previously observed in the Philippines.

An independent review of the project in 2009 noted that despite its significant success, challenges remained surrounding the institutional foundations, and recommended the provision of operational funds by ACIAR as an incentive for the lead landcare agency – the Landcare Foundation of the Philippines Inc (LFPI) – and its Filipino partners in the landcare program, to take greater control in planning and implementing the landcare effort.

A scoping study commissioned by ACIAR in September 2009, to determine the most appropriate deployment of the additional ACIAR operational funds, recommended ongoing investment in the Landcare Project to help build LFPI's institutional capacity. But it also identified an overlap between the landcare program of LFPI and other current ACIAR projects at landcare sites. As a result, it identified a significant opportunity to improve the collaboration between landcare and these projects to enhance the outcomes and impacts for both, while at the same time supporting LFPI in its ongoing development of leadership of the landcare program. This became the focus of this Small Research Activity (SRA), which was conducted from January 2010 to June 2011.

The objective of the SRA was to implement a program of collaborative activities between LFPI's Landcare Coordinators and ACIAR project personnel to achieve improved livelihoods for landcare farmer at the four landcare project sites.

Major results and impacts included:

- Significant improvement in farmer capacity to apply new technologies such as protected cropping, improved soil health, and better pest and disease management, with a promise of improved future economic returns;
- Continued improvement in the institutional development and marketing performance of market clusters at the four sites as a result of better consolidation and quality management processes, use of micro-financing; and the registration of one cluster as a cooperative;
- Significant improvement in the bridging social capital of farmers through cross-visits to Horticulture Project sites where they were exposed to new ideas and new technologies, and in the process, made direct farmer-to-farmer learning connections. In one case, this was reciprocal with the visited farmers learning about cluster marketing processes and building reciprocal learning networks;
- More effective coordination of technical inputs at project sites through a process of stakeholder meetings, a more proactive involvement of LGU and other local technical staff, and a better system of "farmer-centred" communication amongst partner agencies;
- Orientation to a potential new innovation using aeroponic culture systems to produce disease-free potato seed, with the potential for LFPI to act as a facilitator of farmer and industry consultation, field testing and commercial development;
- Demonstration of a clear need to develop farmer-friendly adaptations of the biofumigation technology to address the relatively low rate of adoption amongst smaller-scale farmers;

- Significant improvement in LFPI's institutional resilience, as a result of better coordination of its services to clients, improved technical capacity to service clients, and the forging of new partnerships at a national level. A particular case was the role of LFPI as one of four national partners in the implementation of the large ACDI/VOCA CoCoPAL Project, which significantly improved its national profile and reputation;
- Demonstration of the potential for improving extension capacity through a more planned and transparent process of group training using the shared expertise of LFPI and Horticulture Project personnel.

The report concludes with three recommendations on continuing the research on aeroponics and biofumigation adoption, continuing the support for LFPI's institutional development through ongoing mentoring, and promoting LFPI's capacity as a potential funded partner in future ACIAR projects to provide much-needed research and extension skills in the fields of community engagement, research consultation, research planning and extension delivery.

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## 3 Introduction

Across a period of ten years, and three phases of the Philippines-Australia Landcare Project funded by ACIAR, the landcare approach has continued to demonstrate its effectiveness in enhancing farmer capacity, changing farming practices and improving farmer livelihoods at a rate that has rarely been previously observed in the Philippines. The evidence supporting this assessment is embodied in a number of project research reports and published working papers.

An independent review of the third phase of the project in May 2009 noted that despite the significant success of the project, challenges remained surrounding the institutional foundations needed to sustain landcare. These challenges were establishing a more realistic and affordable organisational model for LFPI as landcare lead agency, and taking a more realistic short term approach to the “national” development of landcare through strengthening the regional programs and enhancing the alliance between active landcare partners. The review recommended a range of immediate organisational refinements for the landcare lead agency – the Landcare Foundation of the Philippines Inc (LFPI) – and the provision of operational funds by ACIAR as an incentive for LFPI and the Filipino partners in the landcare program to take greater control in planning and implementing these efforts.

A scoping study commissioned by ACIAR in September 2009, to determine the most appropriate deployment of additional ACIAR operational funds for landcare, found the landcare programs at the four current core sites to be robust and operating effectively, with high levels of farmer and local partner involvement and ownership, and that LFPI was making significant progress organisationally in re-positioning itself to take on the challenges of leading the landcare program. However, it also found that LFPI was insecure in terms of its staffing and funding base, and as a result, its continued leadership of landcare development was under significant threat. Because of the overlap between the landcare program of LFPI and other current ACIAR projects at current landcare sites, the scoping mission identified a significant opportunity to both improve the collaboration between landcare and the projects to enhance the outcomes and impacts for both, while at the same time supporting LFPI in its ongoing development of leadership of the landcare program in the southern Philippines. This was the focus of this Small Research Activity (SRA), which was scheduled from January 2010 to June 2011.

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## 4 Project strategy and objectives

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### 4.1 Project strategy

The strategy of the SRA was a development strategy involving the deployment of existing Landcare Coordinators employed by LFPI at the four landcare sites in a planned program of collaborative activities with personnel from other current and overlapping ACIAR projects. The SRA complemented an extension to the existing Philippines-Australia landcare project (ASEM/2002/051) as part of a package aimed at creating a more sustainable platform for landcare by the end of the SRA. As such, this report should be read in conjunction with the Final Report of ASEM/2002/051 (ACIAR, 2012 – see References).

Two components of this package were primarily targeted by the SRA:

1. **Landcare programs at the core landcare sites (Claveria, Lantapan, Ned, Bohol) moving ahead strongly with reduced but more targeted ongoing input from LFPI staff.** This meant the programs continuing to have strong ownership and involvement of farmers, farmer leaders in prominent roles, active involvement of LGU staff, LGU funding support, and active local partnerships with other appropriate stakeholders (for example technical service providers, NGOs and private companies);
2. **Robust operational partnerships in place between personnel of LFPI and personnel of project partners involved in the following ACIAR projects:**
  - HORT/2007/066 – Enhanced profitability of selected vegetable value chains in the southern Philippines and Australia (hereafter referred to as the Vegetable Project);
  - HORT/2007/067 – Improved domestic profitability and export competitiveness of selected fruit value chains in the southern Philippines (hereafter referred to as the Fruit Project);
  - SMCN/2004/078 – Evaluation and adoption of improved farming practices on soil and water resources, Bohol Island, the Philippines (hereafter referred to as the Watershed Project).

This meant not only LFPI Landcare Coordinators being able to better access technical support and innovations emerging from the ACIAR research, but also ACIAR project personnel being able to better utilise the landcare networks for training and transfer of information developed from their research.

The SRA was designed to build on the strengths of both LFPI/landcare and the network of the three other ACIAR projects. The strengths that LFPI brought to the table were:

- Landcare as an approach was clearly delivering benefits to farmers including improved economic livelihoods, improved social capital, improved human capacity and more durable partnerships;
- The close working relationship with farmers through landcare groups and landcare marketing clusters provided good local knowledge of farmer issues and constraints, established social capital networks, and strong local partnerships;
- LFPI's service to landcare stakeholders was highly respected and valued and without the many restrictions that often accompany NGO-agency collaboration within the Philippines context;
- LFPI Landcare Coordinators were highly respected not only for their professional and technical skills, but also for their personal commitment to maintaining the principles and ideals of the landcare process.

The strengths that the ACIAR projects brought to the table were:

- Availability of new research findings of potential benefit to farmers within the landcare groups and landcare marketing clusters;
- Availability of new innovative technologies such as protected cropping systems and integrated pest and disease management systems;
- Availability of specialist technical expertise from the national and international researchers involved in the projects;
- Potential access to new plant varieties and other agronomic inputs.

By building on these strengths, the SRA was designed to service key needs of both groups. These key needs included:

#### ***LFPI/landcare***

- Current limitations in continually accessing new technical inputs;
- Difficulty in coordinating technical applications and new technologies across the wide geographic spread of its network of Landcare Coordinators/Facilitators;
- Potential expansion of its current narrow resource base through opportunities provided by fee for service activities for ACIAR projects;
- Potential for more widely promoting and expanding the landcare concept through the interface provided with the wider range of national partner agencies and businesses involved in the ACIAR projects.

#### ***ACIAR projects***

- Lack of an effective networking and extension service for farmer training and transfer of information developed within the ACIAR projects to smallholder farmers;
- Lack of ongoing reinforcement of research outputs through farmer engagement and extension beyond the life of the projects;
- Lack of effective mechanisms for packaging the various research outputs from different programs, components and research organisations into a single integrated extension package at the farmer level;
- Lack of effective mechanisms to extend the research outputs beyond the existing farmer networks of individual research organisations;
- Lack of effective mechanisms for feedback from farmers and other users of the research outputs.

Based on this, the strategy proposed a more robust partnership between the ACIAR projects and LFPI. Initially, the partnership was focused on LFPI working with ACIAR project partners to improve their information transfer to, and stakeholder networking with, small farmer clusters. The proposal was that the partnership would then be developed into a more significant two-way information exchange where feedback from farmers and stakeholders provided valuable input into the future development of ACIAR programs in the southern Philippines.

An important part of this process was the closer and more purposeful direct engagement between LFPI and the Philippines Horticulture Manager, Mr John Oakeshott. To this end, the Executive Director of LFPI, Mr Ben Aspera, was given primary leadership of the project, with guidance and mentoring as required from the Australian Project Leader, Mr Noel Vock.

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## **4.2 Objectives**

The broad aim of the SRA was to improve the livelihoods of smallholder farmers at the four landcare sites through better connecting them with research outputs and other technical expertise from the ACIAR projects HORT/2007/066, HORT/2007/067 and SMCN/2004/078. This was designed to enhance the ongoing impact of landcare as an extension concept and enhance the adoption and impact of research outputs from the ACIAR projects.

The key objective of the SRA was to implement a program of collaborative activities between LFPI's Landcare Coordinators and ACIAR project personnel to achieve the above aim.

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## 5 Methods

Fourteen activities were proposed for the 18-month period of the SRA:

**Activity 1:** Develop a formal Landcare Coordinators Network (LCN), consisting initially of LFPI Regional Landcare Coordinators/Facilitators from the four landcare sites, and develop an action plan to improve the collective coordination of research inputs to the sites and the sharing of knowledge and experience. It was proposed that the LCN would then meet at no more than six monthly intervals to review progress and review the action plan. The key output of the LCN was to be the consolidation and sharing of technical innovations from each site (particularly the ones from the ACIAR vegetable project and the ACIAR watershed project). Where appropriate, the LCN meetings were to be timed to coincide with visits from Australian researchers

**Activity 2:** At the Claveria site, through the technical innovation consolidation and sharing process of the LCN, interface the banana cluster more effectively with the technical innovations and personnel from the C1 and C4 components of the vegetable project. This was to be achieved by the Claveria Landcare Coordinator convening a special meeting of partner agency personnel and cluster leaders to clarify needs and expectations and produce a 12-month action plan. The meeting was designed to identify needs and opportunities for connection of the cluster with market research emerging from the vegetable project Component C4 and soil nutrient management technology emerging from vegetable project Component C1. The Landcare Coordinator was to re-convene the group at 12-monthly intervals to review progress and the action plan.

**Activity 3:** At the Lantapan site, facilitate the formation of a local Technical Coordinating Committee, representing key personnel from the C1, C3 and C4 Components of the vegetable project, LFPI, the LGU and major technical service agencies, to better service the needs of the vegetable clusters. Although the clusters had been previously involved with personnel and technologies from Components C1, C3 and C4 of the vegetable project, there appeared to be some need for this to be better coordinated and managed at the local level to help improve relevance and efficiency. This had been suggested to the scoping mission by local stakeholders. The formation and operation of the Committee was to be facilitated by the Lantapan Landcare Coordinator. It was envisaged that the Committee would meet at regular intervals as required throughout the year to plan the most effective match between the needs of the clusters and the technical inputs of the various partners, particularly the personnel from the C1, C3 and C4 Components of the vegetable project. The Committee would also be used to provide an effective forum for UP Mindanao UPSTREAM to debate with partner agencies the selection of new marketing clusters to be developed within Lantapan under Component C4 of the vegetable project, and to provide ongoing advice on the rollout of the agroenterprise process.

**Activity 4:** At the Lantapan site, through the LCN, connect the vegetable clusters with experiences and learnings from other sites, particularly the Ned vegetable cluster, to improve farmer to farmer learning and exchange. The scoping mission had formed the view that the Lantapan clusters had some significant ongoing sweet pepper production problems related to pests and diseases, some of which it was anticipated could have been resolved by the Ned group. The process was for the Lantapan and Ned Landcare Coordinators to facilitate a process of interchange between the Lantapan and Ned vegetable clusters to promote direct farmer to farmer sharing. This was to involve farmer cross visits and/or a shared group interaction with researchers from the vegetable project.

**Activity 5:** At the Ned site, convene a special meeting of all local landcare stakeholders (including the three levels of the LGU, NLCA, key personnel from the C3 and C4 Components of the vegetable project, and other local landcare partners) to clarify the needs of the NLCA cluster and broader membership and to clarify the expectations of each agency including LFPI. This was to be achieved by the Ned Landcare Coordinator

conducting a special meeting of local landcare stakeholders including partner agency personnel, personnel from the C3 and C4 Components of the vegetable project and cluster leaders, to clarify needs and expectations and produce a 12-month action plan. The first meeting of the Committee was also to be used as an opportunity to clarify expectations of each partner agency with respect to the cluster and the broader landcare movement within the Ned Barangay. The Landcare Coordinator was to re-convene the group at 12-monthly intervals to review progress and the action plan.

**Activity 6 (in collaboration with Activity 4):** At the Ned site, through the LCN, connect the vegetable cluster with experiences and learnings from other sites, particularly the Lantapan cluster, to improve farmer to farmer learning and exchange and interaction with the vegetable research program. For more detail, see Activity 4.

**Activity 7:** At the Bohol site, convene a special meeting in Pilar of Pilar LGU officials, BEMO and other major Pilar stakeholders (including ICRAF as implementers of the ACIAR watershed project) to clarify the PILAR DAM needs and the expectations of the various stakeholders. This was to be achieved by the Bohol Landcare Coordinator conducting a special meeting of local Pilar landcare stakeholders to clarify the LGU PILAR DAM needs and the expectations of the various stakeholders, and produce a 12-month action plan. The Landcare Coordinator was to re-convene the group at 12-monthly intervals to review progress and the action plan.

**Activity 8:** At the Bohol site, convene a special meeting of the Masonoy and Baryong Daan farmer leaders with barangay and municipal LGU officials, BEMO and other major stakeholders (including ICRAF as implementers of the ACIAR watershed project) to clarify the cluster needs and the expectations of the various stakeholders. The Pilar MPDC and MAO were to be involved in the meeting to help establish better linkages to outside support. This was to be achieved by the Bohol Landcare Coordinator conducting a special meeting of local Masonoy and Baryong Daan landcare stakeholders (including the Pilar MPDC and MAO) to clarify the needs of the landcare clusters and the expectations of the various stakeholders, and produce a 12-month action plan. In particular, the Landcare Coordinator was to facilitate a direct information exchange between the Masonoy banana cluster and the Claveria banana cluster, as well as an interface between the Baryong Daan copra cluster and personnel from the C4 Component of the vegetable project, where these are deemed appropriate from the stakeholder meetings. In this case, the interchanges were to be implemented via farmer cross-visits to appropriate sites in Northern Mindanao. The Landcare Coordinator was to re-convene the stakeholder groups at 12-monthly intervals to review progress and action plans.

**Activity 9:** At the Bohol site, based on the needs established at the San Isidro special meeting, interface the Baryong Daan copra cluster with technical support from the C4 Component of the vegetable project, either through the LCN or by a cross-visit to a C4 site in Northern Mindanao. See Activity 8.

**Activity 10:** For the existing scaling-up sites in which LFPI has current programs in operation, and where there is overlap between landcare and the vegetable project, (for example, Kapatagan and Tupi), do a more purposeful evaluation of both the rationale for involvement and the outcomes/benefits, and ensure that there is an appropriate coordination of inputs. This was to make sure the rationale for involvement was practicable and the desired outcomes and benefits achievable. This was to be achieved by the Ned Landcare Coordinator convening special meetings of all major stakeholders to more carefully study the rationale for involvement of LFPI including proposed outcomes and benefits. In Kapatagan, where the premise for involvement appeared to be demonstrating the role of landcare in securing livelihoods within a protected area, it was envisaged that a reality check may be required to ensure that outcomes and benefits were in fact feasible. In Tupi, where the premise for involvement appeared to be demonstrating the role of landcare in achieving livelihood improvement in conflict communities, a clear understanding of the outcomes being pursued was necessary. This was particularly important in this case where the project time frame was short, there was not much time to

build future capacity and support of partners, and there was a focus on partnership building for the future at the expense of immediate operational funds for LFPI. The Coordinator was also to use the special meetings to analyse and improve the coordination of inputs from the project partners as well as to clarify expectations.

**Activity 11:** Develop a networking program to facilitate a more effective engagement with LFPI of the Philippines Horticulture Manager. During the meeting to form the LCN (see Activity 1), it was proposed that LFPI staff in conjunction with the SRA Project Leader and the Philippines Horticulture Manager would develop a shared action plan to ensure effective engagement between LFPI and the horticulture projects (vegetable project; fruit project). This was to focus on activities such as integrating the visits of ACIAR project research personnel with LFPI; inviting LFPI Landcare Coordinators to horticulture project events; inviting LFPI to project component workshops; introducing LFPI staff and management to project component members; assisting LFPI with applications to potential major collaborators such as ACDI/VOCA; linking the LFPI website to the horticulture projects Web2, and perhaps assisting LFPI to adopt Web 2 technologies within their own website; and facilitating the Philippines Horticulture Manager to guide/mentor the LCN, particularly in its activities related to collaboration with ACIAR projects.

**Activity 12:** Through the networking program with the Philippines Horticulture Manager, undertake a business assessment of LFPI potentially undertaking technical support roles for the horticulture projects such as potato seed certification, breeding and selling of beneficial insects, and a soil testing/fertiliser recommendation service. These were envisaged as potential fee for service activities that complemented the LFPI ideology. This was to be achieved during the process outlined in Activity 11.

**Activity 13:** Develop a networking program to facilitate a more effective engagement of research personnel from the watershed project with LFPI. During the Bohol stakeholder meetings outlined in Activities 7 and 8, where personnel from the watershed project would be involved, more effective networking was to be planned and included in the action plans. The networking was to include operational field staff of the project as well as visiting research staff from the Philippines and Australia. This networking was to mirror that proposed in the Mindanao sites with the horticulture projects.

**Activity 14:** Through the LCN and interaction with the Philippines Horticulture Manager, evaluate the partnership every six months to assess its effectiveness and identify areas of improvement. At LCN meetings, it was proposed that the Landcare Coordinators would re-evaluate the collaborative partnership in conjunction with the Philippines Horticulture Manager. This was to involve a spot assessment of the benefits to both parties and to the farmer clients.

**Important note:** Most of the above activities, while servicing the needs and objectives of the SRA, were also concurrently servicing other needs and objectives of the Philippines-Australia Landcare Project (ASEM2002/051). As such, this report should be read in conjunction with the Final Report of that project (ACIAR, 2012 – see References).

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## 6 Results and achievements

Note that because the main area of concurrent interest and site overlap between the Landcare and Horticulture Projects was in vegetable production systems, the main focus of the partnership activities was in the four components of the vegetable project. This is reflected in the results below. However, a watching brief was kept on the fruit project, for possible benefits to landcare farmers in the component crops of papaya, durian, jackfruit and mango.

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### 6.1 Activity 1: Development of the Landcare Coordinators Network (LCN)

During a staff planning meeting in March 2010, attended by the four regional Landcare Coordinators/Facilitators (Claveria, Lantapan, Southern Mindanao, Bohol), the LFPI Executive Director and the Philippines Horticulture Manager, the LCN was initiated and a preliminary action plan developed. The action plan included improved email communication, improved updating and reporting, governance training by the Executive Director, and a proposed program of mentoring for junior Landcare Coordinator/Facilitator staff. The Philippines Horticulture Manager provided an overview of the Horticulture Projects and agreed to implement a system of regular updates of project events, visits of technical specialists and project progress. Importantly, he provided access for LCN members to the Horticulture Project members-only website, including a system where LCN members were able to post photos of crop problems and other queries for input from his project specialists. This was subsequently instrumental in identifying a major fruit fly incursion in sweet pepper crops in the remote Ned site, which was at that time inaccessible to horticulture project personnel.

The LCN action plan was reviewed at subsequent LFPI team meetings held approximately every six months.

In January 2011, other Landcare Facilitators operating outside LFPI were invited to participate in the LCN, at the inaugural meeting of the Philippines Landcare Network (PLN) in Cagayan de Oro. These Landcare Facilitators included some working on other national and international projects, and some working at the LGU level within project sites such as those at Claveria and Lantapan. This enabled a greater sharing of not only new research inputs from the projects but also experiences in a range of extension methodologies.

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### 6.2 Activity 2: Technical interfacing of the Claveria banana cluster

The special meeting of partner agency personnel and cluster leaders to clarify the needs and expectations of farmers and partner agencies was held in April 2010 and an action plan for the remainder of the SRA developed. Outcomes of the action plan included:

- Participation of farmers and project staff in a major field day on soil health and nutrition at Claveria in late April 2010. The field day was co-arranged by the C1 component of the vegetable project (managed by ICRAF) and LFPI;
- Greater sharing of the facilitation load for the cluster between LFPI and the Claveria LGU. This resulted in the LGU MAO taking the lead in co-hosting meetings and providing particular technical inputs. It also enabled a greater responsiveness to cluster needs, as demonstrated by the shared facilitation of the provision of start-up marketing capital in lieu of training funds;

- While there was little opportunity for collaboration with the C4 component of the vegetable project (managed by UP Mindanao), owing to priority being assigned to other sites, the project was instrumental in facilitating the provision of livelihood support for cluster members from the CRS Jollibee Project.

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### **6.3 Activity 3: Formation of the Lantapan Technical Coordinating Committee**

A special meeting of partner agency personnel, cluster leaders and other relevant stakeholders (such as LGU, Bukidnon Cooperative Bank, Department of Trade and Industry and Normin Veggies) to clarify the needs and expectations of farmers and partner agencies was held in April 2010, and a broad consensus on the value of a Technical Coordinating Committee developed. However, rather than formalise such a Committee, it was agreed to operate the entity in an informal sense, by better “farmer-centred” communication between stakeholders within the parameters of the existing partnerships. An action plan for the remainder of the SRA was subsequently developed. Outcomes of the action plan included:

- Participation of farmers, project staff and major technical stakeholders in a major field day on soil health and nutrition at Lantapan in late April 2010. The field day was co-arranged by the C1 component of the vegetable project (managed by ICRAF) and LFPI;
- Increased collaboration with the C4 component of the vegetable project (managed by UP Mindanao), including the development of a Memorandum of Agreement (MOA) between the clusters, LFPI and UP Mindanao; provision by UP Mindanao to the clusters of material support in the form of plastic crates and weighing scales; facilitation of stakeholder support to the clusters including funding from the Lantapan LGU for rain shelter materials and seeds, and funding from MINCIADP for livelihood support activities; broadening of cluster activities to crops other than sweet pepper; and strengthening of cluster management processes including the establishment of a consolidation centre for the PAGLAMBU cluster and the development of a cooperative entity for the Kaatuan cluster;
- Development of a special technical study group involving LFPI, technical personnel from the C3 component of the vegetable project and LGU ATs, to improve the farmer uptake and impact of biofumigation technologies for bacterial wilt control in vegetables. The purpose of the study group was to better understand the technical aspects of biofumigation technologies with a view to simplifying and adapting biofumigation processes to facilitate greater adoption. This recognised the constraint on vegetable clusters of bacterial wilt in the production of existing crops (such as sweet pepper) or diversification into new crops (such as potato). It also recognised the fact that although many farmers are familiar with the technology, there was limited adoption. Farmer research conducted by LFPI demonstrated that the limited adoption was due to the high labour cost and the impracticability of biofumigant crops within the current vegetable crop rotation. Although Landcare Facilitators at each of the Lantapan and Ned sites received limited training towards the end of the project to improve their knowledge and confidence in applying and extending the technology to farmers, practical solutions to the main adoption constraints were not readily identified and widespread adoption of biofumigation appears at this point elusive;

- As a sequel to the biofumigation technical study group, in May 2011, Australian and Philippines researchers from the C3 component of the vegetable project collaborated with LFPI staff on conducting a survey of 25 vegetable growers in Lantapan and Ned to study vegetable cropping sequences and farmer management practices for bacterial wilt and other diseases. The survey was undertaken through group workshops involving training on IPM strategies. The results of the survey will be used to inform improved research and extension strategies in the next phase of the Horticulture Project.

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## **6.4 Activities 4 and 6: Connection of the Lantapan and Ned vegetable clusters**

During the stakeholder meetings conducted in Lantapan and Ned to clarify the needs and expectations of farmers and partner agencies (Activity 3 above, and Activity 5 below), interest in a program of cross-visits for farmers and local technical support personnel from the two sites was canvassed. Both groups expressed interest in a two-way cross-visit between the Ned and Lantapan sweet pepper clusters. As a result, a program of cross-visits was planned for implementation in the May to August 2010 period. These included:

- Cross visit of landcare farmers, cluster members and local support personnel from Southern Mindanao (Ned, Kablon, Kapatagan, Koronadal) to Lantapan to study sweet pepper production and vegetable protected cropping systems of Lantapan cluster members and the vegetable research program at NOMIARC. The tour group consisted of farmers, Landcare Facilitators, LGU staff and regional staff from UP-Mindanao under the C4 component of the vegetable project.
- Cross-visit of landcare farmers and cluster members from Ned and Kablon to Leyte to study protected cropping systems for vegetables under the C2 component of the vegetable project. The purpose was to study the farmer experiences of protected cropping for improving production, particularly in reducing pest and disease problems and rain damage, as well as extending production in the off season (wet season) to support a wider and more reliable supply chain. Costs of the cross-visit were shared between the Landcare Project and the C2 component of the vegetable project. As a result of the visit, several rain shelter experiments were conducted by Ned and Kablon farmers, and adaptations are ongoing;
- Cross visit of landcare farmers, cluster members and LGU support personnel from Lantapan to Claveria to study rubber-based agroforestry systems and their application within the vegetable production system.
- The proposed reciprocal cross visit of Lantapan farmers and associated personnel to Ned to study the Ned sweet pepper production system did not proceed due to security concerns and consequent higher costs.

An interesting outcome of the cross visit of Southern Mindanao personnel to Leyte was the reciprocal exposure of Leyte farmers to the experiences of agro-enterprise and cluster marketing. As a result, the two farmer groups agreed to set up a farmer to farmer network for future interchange on these topics, with potentially a future cross visit of Leyte farmers to Southern Mindanao to study cluster marketing and the way in which the landcare vegetable clusters are structured. This is designed to build the capacity of the Leyte farmers to develop a more market-oriented farming system. It is a good example of collaboration providing reciprocal benefits to farmers associated with both projects.

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## **6.5 Activity 5: Clarification of needs of the Ned vegetable cluster**

The special meeting of local landcare stakeholders, to clarify the needs and expectations of farmers and partner agencies, was held in March 2010 and an action plan for the

remainder of the SRA developed. The meeting included the three levels of the LGU (barangay, municipal and provincial), Ned Land Care Association (NLCA), NLCA cluster leaders, and key personnel from the C3 and C4 Components of the vegetable project. Outcomes of the action plan included:

- Interest in a cross visit to Lantapan to study sweet pepper production systems of the Lantapan vegetable clusters, including protected cropping systems. See the report on this under 7.4 above;
- Subsequent interest in a cross visit to Leyte to study protected cropping systems of the C2 component of the vegetable project. See the report on this under 7.4 above;
- Improved collaboration between LFPI and the C4 component of the vegetable project (specifically UP-Mindanao researchers and technical staff) in further refining the marketing program and structure of the Ned vegetable cluster, particularly in relation to quality management, consolidation centres, market outlets and material inputs. In addition, LFPI and UP-Mindanao expanded the cluster marketing model to new sites for indigenous peoples (IPs) in South Cotabato, such as Kablon and Tupi;
- The Ned Landcare Facilitator was also involved in the special technical study group on biofumigation involving LFPI, technical personnel from the C3 component of the vegetable project and LGU ATs, reported under 7.3 above. He was also involved in the survey of 25 Mindanao vegetable growers to study vegetable cropping sequences and farmer management practices for bacterial wilt and other diseases – also reported under 7.3 above.
- As a sequel to the above activities related to bacterial wilt, the Australian research team from the C3 component of the vegetable project identified aeroponic culture as a potential innovation for the production of potato seed free from bacterial-wilt and other diseases. As a result, the Ned Landcare Facilitator, Felipe Turnos, joined a study tour of aeroponic research establishments in Vietnam led by Australian researchers Mike Hughes and Peter Treverrow, and also involving Carmelito Lapoot of NOMIARC. The inclusion of Felipe Turnos in the study tour was to cement strong field and grower linkages into any subsequent potential trial of aeroponic culture in the Philippines. The study tour demonstrated that the technique has significant potential for the Philippines, and further development is proposed in the next phase of the Horticulture Project.

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## **6.6 Activity 7: Clarification of needs of the PILAR DAM Program in Pilar, Bohol.**

The special meeting of local landcare stakeholders, to clarify the needs and expectations of farmers and partner agencies in the PILAR DAM Program, was held in April 2010 and an action plan for the remainder of the SRA developed. The meeting included representatives from LFPI, the Pilar LGU, the Provincial Agriculture Office (PAO), Bohol Environment Management Office (BEMO) and staff from ICRAF and BSWM, as implementers of the ACIAR watershed project. Outcomes of the action plan included:

- Closer collaboration between LFPI and ICRAF/BSWM personnel of the ACIAR watershed project on cross-visits and joint training exercises for farmer groups. Key outputs were that landcare farmers were able to participate in cross-visits to interesting enterprises in watershed project sites, as well as access a season-long training program on high value vegetable production from the private company East-West Seeds. A key component of the training package was provision of a production loan fund to help farmers adopt the improved production practices. However, activity was curtailed towards the end of 2010, as a result of the conclusion of the watershed project;

- Cross site visits in May 2010 and April 2011 to Leyte to study protected cropping systems developed under the C2 component of the vegetable project. In the 2011 trip, a Pilar group joined the group from Southern Mindanao, facilitating useful farmer-to-farmer interaction and learning.

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## **6.7 Activities 8 and 9: Clarification of needs of farmer clusters in Masonoy and Baryong Daan, San Isidro, Bohol**

The special meeting of local landcare stakeholders, to clarify the needs and expectations of farmers and partner agencies, was held in May 2010 and an action plan for the remainder of the SRA developed. The meeting included representatives from LFPI, barangay and municipal LGU officials from San Isidro, the MPDC and MAO from Pilar, Bohol Environment Management Office (BEMO), cluster leaders from Masonoy and Baryong Daan and staff from ICRAF and BSWM, as implementers of the watershed project. Outcomes of the action plan included:

- Closer collaboration between LFPI and ICRAF/BSWM personnel of the watershed project on cross-visits and joint training exercises for farmer groups. Key outputs were that landcare farmers were able to participate in cross-visits to interesting enterprises in watershed project sites, as well as access a season-long training program on high value vegetable production from the private company East-West Seeds. A key component of the training package was provision of a production loan fund to help farmers adopt the improved production practices. However, activity was curtailed towards the end of 2010, as a result of the conclusion of the watershed project;
- A cross site visit in May 2010 to Leyte to study protected cropping systems developed under the C2 component of the vegetable project;
- Establishment of linkages between the San Isidro clusters (Baryong Daan copra and Masonoy banana) and the Claveria banana cluster. These involved co-facilitation between the two regional Landcare Facilitators and cross visits of relevant personnel to support joint sharing of experiences. While support from the C4 component of the vegetable project was negotiated, little input was possible during the relatively short duration of the project owing to the priority assigned to other sites.

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## **6.8 Activity 10: Review of programs in existing landcare scaling-up sites**

At the project planning meeting at the start of the project, it was resolved to focus the effort under this activity on the indigenous peoples (IP) sites in Kablon and Tupi (South Cotabato). This recognised the fact that the issues in Kapatagan, involving complex relationships across many organisations related to farming activities in protected areas, were beyond the scope of the project within the short 18-month timeframe.

Meetings of local landcare stakeholders were held in both communities to clarify the needs and expectations of farmers and partner agencies. The meetings involved LFPI, IP and farmer leaders, LGU officials, and personnel from UP Mindanao under the C4 component of the vegetable project. The meetings agreed to focus activities for the SRA on cross-visits and interaction with C4 component personnel. At the same time, it was agreed that the project offered significant potential as a template for the provision and coordination of landcare and other technical support to similar scaling up sites in IP and conflict areas. Key outcomes included:

- Through the inputs of LFPI and C4 component personnel from UP-Mindanao, the cluster marketing model was expanded to the Kablon and Tupi sites;
- Involvement of farmers from Kablon in the Southern Mindanao cross-visit to Leyte to study protected cropping systems under the C2 component of the vegetable project;

- As a result of the above, the new market clusters in the two sites showed significant innovation in developing new products and consolidating new market outlets. A good example was the integration of bamboo into vegetable agroforestry systems for the production of bamboo barbecue sticks to meet a particular market niche.

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## **6.9 Activity 11: Development of networking program between LFPI and the Philippines Horticulture Manager**

At the February project planning meeting, proposed methods of networking were canvassed and incorporated into an action plan. The action plan resolved to:

- Develop a regular email exchange between the two parties;
- The Philippines Horticulture Manager to promote the benefits of collaboration to horticulture project personnel through an article in the project newsletter;
- LFPI staff to be given access to the horticulture project Web2 website and regularly interact with the information on the site, including posting problems on pests and diseases that require identification or management advice;
- The Philippines Horticulture Manager to identify appropriate sources of expertise for landcare sites amongst horticulture project personnel; and
- LFPI staff to participate in the horticulture projects annual reviews, particularly the mid-term review of the projects in August 2010.

As a result, the following outcomes are worthy of note:

- LFPI was able to use the horticulture project's technical network to assist Landcare Facilitators with various technical queries. For example, a serious insect problem with sweet pepper in the remote location of Ned was diagnosed through pictures posted via email to the technical network, and appropriate treatments for trial were subsequently recommended by various pest management experts.
- LFPI was exposed to a range of new technical innovations of benefit to landcare members through the interface with visiting Australian vegetable researchers. Significant amongst these were Chris Dorahy from Component C1, Gordon Rogers from Component C2, Nandita Pathania, Peter Treverrow and Mike Hughes from Component C3 and Fay Rola-Rubzen from Component C4.
- LFPI was able to access valuable training opportunities through the interface with the horticulture project, for example the training in Web2 technologies provided in November 2010. This was instrumental in LFPI reviewing and revising its own web presence.
- Through exposure to the innovative video approach used by the C2 Component of the vegetable project to more effectively profile its outcomes on protected cropping in Leyte, LFPI was inspired to proceed towards a more video-orientated promotion of landcare. To this end, a program was developed by LFPI to produce a pilot landcare video, using the video production expertise from the Leyte experience.
- The Philippines Horticulture Manager was able to facilitate important linkages between LFPI and potential partners of strategic importance to the future financial integrity and resilience of LFPI. These included the large international NGO, ACDI/VOCA (see below); local Mindanao-based staff of the International Finance Corporation, to whom LFPI was facilitated to make a presentation; and an AusAID peace building investigation team, for future discussions on the potential for landcare in reducing tensions in conflict communities.

- The linkage facilitated with the large international NGO, ACDI/VOCA, was instrumental in LFPI securing a role as one of four major Philippines national implementing partners in the multi-million dollar CoCoPAL Project. This allowed LFPI to test the landcare concept in a different social, political and institutional setting in Western Mindanao. As a result of this involvement, LFPI was assigned the largest target area covering three provinces and 8000 farmers, with the deployment of 24 staff. LFPI was subsequently recognised for its high level of contact with partner agencies and received the Recipient Agreement Award based on the USDA assessment tool of technical and financial proficiency.
- LFPI was able to support the horticulture project in strategising extension processes. This commenced at the mid-term review workshop of the project in Leyte in August 2010 where a range of extension ideas and innovations were shared amongst workshop participants. The concept of an extension workshop to assist horticulture project personnel with their extension delivery was proposed and extension advice services of LFPI offered to Philippines partners. As a result, a small steering group consisting of leaders of the landcare and horticulture projects facilitated extension linkages where appropriate, and delivered an innovative Q&A extension sharing workshop at the horticulture project's annual review workshop in Bohol in July 2011. A report on this activity is listed under References. LFPI staff also assisted individual Component groups of the vegetable project in their extension planning, as well as providing an innovative team-building social program.
- The collaboration between LFPI and the Philippines Horticulture Manager and horticulture project identified the important role that LFPI could play in any potential future stages of the horticulture project, particularly in relation to engagement with farmer clients, clarification of research needs, planning of research inputs, and extension of research results. As a result, LFPI became involved in review and planning workshops for the next phase of the horticulture project, with a view to the organisation being involved as a potential formal partner.

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## **6.10 Activity 12: Business assessment of technical support roles for ACIAR projects**

Although the potential for LFPI to be involved in providing technical services on a commercial basis in areas such as potato seed certification, breeding and selling of beneficial insects, and soil testing/fertiliser recommendation services was considered, the activity was not progressed because of capacity limitations stemming from LFPI's involvement in the large ACDI-VOCA CoCoPAL Project.

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## **6.11 Activity 13: Development of networking program between LFPI and ACIAR soil and water resources project**

Note that outcomes from this activity are reported under 7.6 and 7.7 above.

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## **6.12 Activity 14: Evaluation of collaborative partnerships**

During the February 2010 planning workshop, performance criteria were discussed and noted. It was agreed that evaluation of the partnership would be undertaken at two points during the project – August 2010 and July 2011 – coinciding with attendance at the horticulture project's annual review workshops. These reviews would also coincide with visits to the Philippines of the Australian Project Leader.

The performance criteria were:

- Improvement in coordination of the LCN in servicing landcare sites;

- Improvement in technical knowledge of Landcare Coordinators in servicing landcare sites;
- Improvement in economic outcomes for landcare farmers/cluster members as a result of the collaboration;
- Improvement in social and institutional outcomes for landcare farmers/cluster members as a result of the collaboration;
- Level of collaboration achieved between the Landcare and Horticulture Projects, and the impact of that collaboration;
- Improvement in the institutional development and resilience of LFPI as a lead agency for landcare.

Outcomes and impacts are reported under Impacts (Section 8) and Conclusions and Recommendations (Section 9).

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## 7 Impacts

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### 7.1 Scientific impacts

From a landcare perspective, there were two significant scientific impacts:

- The potential for aeroponics as a means of producing potato seed free from bacterial wilt and other seed-borne pests and diseases was established. While the technique still requires scientific validation, field testing and commercial production feasibility testing within the Philippines context, it holds significant potential for addressing arguably the most significant constraint to the production of solonaceous crops in the Philippines.
- The biofumigation study group showed a clear need for the ongoing development of practical solutions to the main adoption constraints, particularly for smaller-scale farmers. While there is no doubt that the technique is scientifically sound and effective, and indeed adoptable by larger more mechanised farmers, there appears to be still a significant gap in the adoption potential for smaller, less mechanised farmers.

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### 7.2 Capacity impacts

At the farmer and local institution level, the stakeholder meetings were very effective in better clarifying needs for capacity improvement, and importantly the most effective ways of coordinating and delivering these improvements from across the collaborative partner network. This was shown in the coordination of inputs and services for both the landcare-vegetable project interactions and the landcare-watershed project interactions. Of particular note was the improved level of engagement of LGU staff and the increased level of interest shown by farmers and local technical support personnel in cross-visits to areas of new technical and institutional interest.

As a result, there was significant continued improvement in farmer knowledge, capacity and evolution of the market clusters. This was obvious in the greater sophistication of their operations and greater self-sufficiency, exemplified by the development of consolidation centres and quality systems; use of micro-financing; and the registration of the Katuaan cluster in Lantapan as a cooperative. The rapid development of new clusters in the scaling-up sites was also impressive, with the development of the training and development template a useful tool to impact on the capacity of involved farmers and local support personnel at these new sites.

At the LFPI level, collaboration with the Philippines Horticulture Manager was instrumental in significantly assisting in the development of its organisational capacity and resilience. This was exemplified in the subsequent role that LFPI achieved in the large CoCoPAL Project; the linkages established with potential new business partners; improved access to technical information and support such as diagnostic services and training; and higher profiling of its community engagement and extension capacity to potential new project partners. Partly from the collaboration and partly from LFPI's own internal capacity-building, the LCN was also noticeably better coordinated and effective in delivering landcare facilitation services to its four regional sites.

At the horticulture project level, the capacity impacts from the collaboration with LFPI were limited in scope, but hold significant potential. Examples include the potential development of capacity in cluster marketing for the Leyte protected cropping farmers, using the landcare clusters in Lantapan and Ned as mentors; the development of better understanding of the bacterial wilt management issues at the farmer level for researchers; and the development of better extension capacity for project personnel through potential

group training programs using shared expertise from LFPI and horticulture project personnel.

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### 7.3 Community impacts

From an economic perspective, farmers reported improved economic performance as a result of the project, although this was not formally measured and based anecdotally on responses during project activities. The improved performance was predominantly from the incremental improvement in cluster processes such as better consolidation and quality management, enabling better connection with marketers and market needs. The role of the cross-visits in exposing farmers and support personnel to new ideas from other clusters was rated very highly by all farmer groups. The provision of material inputs such as rain shelters, plastic crates and weighing scales was also identified as contributing to the positive economic impact.

The most significant social impact of the project was the impact on the development of bridging social capital, linking the farmers with other farmers, communities, personnel and agencies normally beyond their reach. All farmer groups were extremely positive in their regard for the value of the cross-visits, emphasising that the impact of cross-visits on their potential livelihoods (both economic and social) is greater than any other process of learning or exposure to new ideas and technologies. Their response confirms the value of direct farmer-to-farmer interaction and the inspiration this provides over the more normal "third-party" extension processes.

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### 7.4 Communication and dissemination activities

Communication and dissemination activities were primarily directed to keeping the stakeholder groups at each site informed on progress, and developing the processes of communication between LFPI staff and the Philippines Horticulture Manager/vegetable project staff. These were reported in more detail in Section 7.

Information on the project was displayed on both the LFPI and horticulture project web sites.

A major communication activity was the special extension Q&A workshop held during the horticulture project annual review workshop in Bohol in July 2011. This was reported under Section 7.8, and involved a panel of five extension specialists answering questions about extension processes from both a compere/moderator and the workshop audience. Questions could be asked both verbally in person or texted in anonymously by cell phone to a Q&A hotline. Comments could also be texted in anonymously to the hotline. The whole session was televised onto large-screen monitors for the benefit of the audience so that they could see not only close-ups of the panel, but also the questions and comments being texted in. A major report on the workshop is listed under References.

Other publications produced by the landcare project as part of the collaboration are listed under References.

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## 8 Conclusions and recommendations

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### 8.1 Conclusions

There was no doubt that the collaboration between the landcare project and both the horticulture project and watershed projects was successful in achieving the objective of improving the livelihoods of landcare farmers at the landcare sites. While the improvement in the economic dimension of livelihoods may not have been great in magnitude across the 18-month period of the project, it was significant in its potential to offer greater future benefits through the investment in capacity in technologies such as protected cropping, improved soil health, better pest and disease management and improved cluster marketing performance. Anecdotal data from farmer responses confirms this potential. Of importance is the fact that the market cluster model continued to confirm its potential as an effective model for livelihood development, both in its continuing success at existing sites, and its initial success at new scaling-up sites.

Of particular note is the significant improvement in the social capital dimension of livelihoods through the cross-visits that farmers were able to make to other sites where they were exposed to new ideas and new technologies. Important in this is not only the interaction with technical personnel, but the interaction with other farmers, which was perceived by participating farmers as one of the most significant benefits. The fact that this bridging social capital has facilitated an ongoing two-way exchange between Leyte farmers and Ned/Lantapan farmers for mutual learning on relevant technologies, is a significant project outcome. Improved social and institutional capacity was also obvious in the more proactive role of LGU and other local personnel in participating in project activities.

From an institutional point of view, the collaboration with the horticulture project, and particularly with the Philippines Horticulture Manager, led to significant improvement in its institutional resilience. Not only were its staff able to better coordinate its services to its clients (as indicated through the LCN), and improve its technical capacity to service clients (as indicated through its ability to diagnose pest problems), but also it was able to forge new partnerships at a national level which have significantly improved its profile and reputation (as indicated through its role in the ACDI/VOCA CoCoPAL Project). This improved profile and reputation means that it has also positioned itself to play a key potential role in providing paid services to future ACIAR projects in the areas of community engagement, research planning and extension delivery. LFPI has also positioned itself to play a key role in any development of aeroponic systems for the production of disease-free potato seed by acting as a facilitator of farmer and industry consultation, field testing and commercial development.

From a scientific perspective, the project demonstrated a clear need for ongoing development of farmer-friendly adaptations of the biofumigation technologies to address the relatively low rate of adoption amongst smaller-scale farmers.

At the Horticulture Project level, the project demonstrated the potential for improving extension capacity through a more planned and transparent process of group training using the shared expertise of LFPI and horticulture project personnel.

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### 8.2 Recommendations

Three recommendations are made:

1. That consideration be given to continuing the work on aeroponics and the development of farmer-friendly adaptations of the biofumigation technologies

during the next phase of the horticulture project. The case for this has been articulated elsewhere in this report.

2. That ACIAR considers continued low-level support for the institutional development of LFPI as the lead agency for landcare development. Although LFPI appears now to be a more resilient organisation, it is considered that continued mentoring from Australia will be beneficial in consolidating its position as a quality provider of services to future ACIAR projects in the region. Any ongoing ACIAR support would complement a recently-approved trial of a landcare mentoring program funded by the Crawford Fund, which will allow five LFPI staff to undertake a week-long mentoring visit to Queensland in early to mid 2012.
3. That LFPI be considered as a funded partner in the next phase of the horticulture project, and in other relevant ACIAR projects, to provide research and extension skills in the fields of community engagement, research consultation, research planning and extension delivery. As LFPI has demonstrated sound research skills in both the landcare and CoCoPAL Projects, it offers the potential to research more appropriate extension methodologies for research projects. As it grows its landcare footprint across the southern Philippines, its knowledge of farmer needs, local institutional partners and appropriate processes for extension delivery will become more and more valuable to new projects.

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## 9 References

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### 9.1 References cited in report

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- Turnos, Felipe.C. (2011). *Study tour in Vietnam on aeroponic technologies for potato seed production*. Report to LFPI and Landcare Project, November 2011, 8pp.
- Turnos, Felipe.C. (2011). *Landcare vegetable clusters educational tour to ACIAR Horticulture Research Program on protected cropping for vegetables in Visayas*. Report to LFPI and Landcare Project, May 2011, 10pp.
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