



**Philippines-Australia  
Landcare Project**

# Landcare in the Southern Philippines: Past, Present and Future

Working Paper Number 8



**Rob Cramb  
Delia Catacutan  
Noelyn Dano  
Noel Vock**





## PREFACE

The Philippines-Australia Landcare Project Working Paper Series is intended to disseminate the results of research undertaken in the course of two successive action research projects, the first funded by the Australian Centre for International Agricultural Research (ACIAR) and the second jointly funded by ACIAR and the Australian Agency for International Development (AusAID):

- ASEM/1998/052 *Enhancing Farmer Adoption of Simple Conservation Practices: Landcare in the Philippines and Australia* (1999-2004)
- ASEM/2002/051 *Sustaining and Growing Farmer-Led Landcare-Type Approaches to Natural Resource Management in the Philippines and Australia* (2004-2007).

For further information about these projects contact the project leader, Noel Vock, at [Noel.Vock@dpi.qld.gov.au](mailto:Noel.Vock@dpi.qld.gov.au) and about the working papers and other research outputs contact Rob Cramb ([r.cramb@uq.edu.au](mailto:r.cramb@uq.edu.au)) or Noelyn Dano ([noelyn\\_dano@yahoo.com](mailto:noelyn_dano@yahoo.com)).

This Working Paper synthesises material from previous project reports and papers, and a project workshop held in August 2006, to review the progress of Landcare over 10 years. The purpose is to identify key lessons from this experience for sustaining and scaling up Landcare in the future. As it is a synthesis paper drawing on many published and unpublished sources, referencing of specific sources has been omitted. The conclusions in the paper are still provisional, subject to ongoing critical evaluation in the final year of the Project, but they are presented here as a basis for discussion and planning.

Rob Cramb

Delia Catacutan

Noelyn Dano

Noel Vock

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## EXECUTIVE SUMMARY

The Landcare Program has been implemented in three core sites – Claveria (Misamis Oriental), Lantapan (Bukidnon), and Barangay Ned (South Cotabato) – starting in 1996. From the early 2000s it has been scaled up to other sites in these three provinces, as well as in Agusan del Sur and Bohol. The Philippines-Australia Landcare Project is finding out what it takes to sustain Landcare in the core sites and to grow Landcare in the scaling-up sites. This Working Paper summarises the findings to date as a basis for discussion.

The following observations relate to the success of Landcare in the three core sites:

- The Landcare Program followed a similar pattern in the core sites, focusing on (a) group training of farmers in soil conservation (especially natural vegetative strips, NVS) and agroforestry, with a high degree of involvement of farmer-adopters in the training process; and (b) the formation of Landcare groups, linked in a municipal Landcare association.
- In all sites there was (a) rapid adoption of soil conservation and agroforestry technologies and (b) rapid formation of Landcare groups. This was partly due to the legacy of programs undertaken by ICRAF, SEARCA or other agencies before the Landcare Program began. However, the Program significantly accelerated the adoption process. After 3-5 years, around a third of farmers in each site had adopted soil conservation and agroforestry technologies, affecting from 10 to 15 per cent of the total farm area in the site.
- There was clear evidence that adoption had a significant impact on reducing soil erosion. The impact on yields and farm incomes was longer term and was primarily a function of the changed cropping practices implemented on the contoured farms (e.g., the planting of crops with greater commercial value). The catchment-wide (or off-site) impacts are currently being investigated in Bukidnon and Bohol.
- The rapid adoption was primarily due to the practical, farmer-based training provided, giving farmers the knowledge and skills they needed to implement a technology they considered useful. There was also evidence that many farmers learned the technology directly from neighbours who had previously undergone training. The personal follow-up provided by Landcare facilitators and, in many cases, Landcare leaders, was also very important. The commitment and skills (technical and organisational) of the Landcare facilitators in each site were crucial to the success of the Landcare program.
- Adoption was positively associated with Landcare participation, allowing for factors such as age, education, gender, ethnicity, place of origin, farm size, and tenure status. Group membership as such was not as important as participation in Landcare training. Farmers joined Landcare groups primarily to access training, technical advice, and assistance (e.g., with planting materials), and to be part of a wider Landcare association, linking them to people and resources beyond their immediate community. The Landcare associations, working on behalf of the local groups and in conjunction with the Landcare facilitators, were influential in

organising training and accessing outside resources, e.g. from local and provincial government.

- In all core sites, the Landcare program sought to collaborate with local government units (LGU), especially at the municipal and barangay levels. The level of collaboration varied over time and from place to place, but overall the Landcare Program induced positive changes in LGU support for community-based natural resource management initiatives. However, in terms of the adoption of conservation practices, similar results were achieved with or without strong LGU support, indicating that the role of the technical Landcare agency (ICRAF, SEARCA) was crucial. This was especially the case once the first wave of rapid adoption and group formation had passed. On-going support from the Landcare agency for the local Landcare association was particularly important in sustaining the Landcare program in the core site, as well as providing a working example for scaling-up sites.

The following observations relate to the experience with scaling up Landcare to new sites:

- Scaling up Landcare inevitably means taking a process that has worked well in one site and encouraging various players to implement the process in a new site. Hence it can never be a purely “bottom up” process. In practice, scaling up has involved professional facilitators from a “Landcare agency” (ICRAF, SEARCA, or CRS) taking the initiative to promote the Landcare process to key actors in local government units (LGU) at provincial and/or municipal level, then working in partnership to provide Landcare training and support to existing or newly formed farmer groups at the barangay level or below. These farmer groups may then take on a Landcare identity or at least incorporate a Landcare function, paving the way for the development of a local Landcare network or association.
- In this sense, the “Landcare triangle” that emerged in Claveria, the first Landcare site, is being replicated, i.e., a three-way partnership between a Landcare agency, local government, and farmer groups and associations. Though the relative contributions of the three partners may vary from site to site, the evidence is that some input from all three is required to initiate and sustain the Landcare process.
- For this partnership to work effectively, it is crucial that Landcare facilitators, whether in government or non-government agencies, are adequately trained in the Landcare process, including working with farmers to identify their needs and networking with a range of agencies to help meet those needs, whether for new farm technologies, market information, key resources such as planting materials, financial resources, or training. It is not enough simply to recruit or redeploy staff and label them Landcare facilitators. There needs to be systematic exposure to the established Landcare sites and proper training in the Landcare process and technologies.
- It is also important that Landcare facilitators are linked together, requiring resources and an organisational mandate and structure. This creates important synergies and is crucial to maintaining the momentum of the Landcare program

when the political cycle causes LGU support to wax and wane and the farmer groups themselves go through normal processes of growth and decline.

These lessons can help in the formulation of a strategy for an expanded Landcare program in the Southern Philippines. Though at first glance it may seem contradictory to contemplate fostering a “grassroots” or farmer-led process through a “top-down” government or program, in fact a national program can be designed to take account of the essential characteristics of Landcare as a farmer-led, group-based extension process. Such a program should consider the following:

- Focusing on the more densely populated uplands and a set of adoptable conservation practices, linked where feasible to more productive and sustainable farming systems;
- Resourcing a professional, independent, geographically dispersed Landcare organisation with a core staff of experienced Landcare facilitators who would work with farmer associations, local government, research agencies, and other groups and maintain a network of Landcare expertise and support;
- Providing resources to selected municipal governments to foster a local Landcare program in partnership with the Landcare organisation and local farmer groups, especially to train and support staff in the field;
- Directly encouraging the activities of farmer-led Landcare groups and associations through leadership training, incentives, cross-site visits, market support, credit, and other activities as they are identified;
- Recognising that this would continue to be an action learning program, allocating resources for participatory monitoring and evaluation and regular pooling of experience across the Landcare sites.



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**Fig. 1** Location of core Landcare sites in Mindanao, established between 1996 and 1999.



**Fig. 2** The five provinces in which Landcare is currently being promoted, with support from ICRAF (Bohol, Misamis Oriental, Bukidnon), SEARCA (South Cotabato), and CRS (Agusan del Sur).



## 1. INTRODUCTION

Landcare emerged in the mid-1980s in Australia and in the mid-1990s in the Philippines as an important strategy for sharing knowledge and developing collective action at the local level to deal with problems of agricultural land degradation. The Landcare approach centres on the formation of community Landcare groups, supported to varying degrees through links with government, research, and other agencies. Such groups identify problems at the local level and mobilise information, community effort, and finances to help improve the management of their soil, water, vegetation, and other natural resources. Hence the Landcare approach can be characterised as a farmer-led, group-based approach to agricultural extension and natural resource management that links farmers, scientists, local government, and other actors in collective efforts to solve resource degradation problems.

The Philippines-Australia Landcare Project encompasses two successive action research projects funded by the Australian Centre for International Agricultural Research (ACIAR) and the Australian Agency for International Development (AusAID). The principal aim of the first project was to test the applicability of the Landcare approach as a tool to enhance the adoption of conservation practices suited to the needs of upland farming communities in Mindanao. This involved providing support for Landcare programs in three core sites – Claveria, Lantapan, and Barangay Ned (Fig. 1) – and evaluating the impacts in terms of the adoption of conservation practices and the formation and development of Landcare groups and networks. The project found that the Landcare approach in these sites was very effective in enhancing farmers' capacities and changing land-use practices at a rate that had seldom been observed in the Philippines. The aim of the second project is to find out what it takes to sustain Landcare in the core sites and to scale up Landcare in a range of contexts in five provinces – Bohol, Misamis Oriental, Bukidnon, South Cotabato, and Agusan del Sur (Fig. 2).

This Working Paper synthesises material from previous project reports and papers and a project workshop held in August 2006 to review the progress of Landcare over 10 years – from its origins in Claveria, its establishment in the two other core sites, and its scaling up to various municipalities in the five abovementioned provinces in the years following. The purpose is to draw out key lessons from this experience for sustaining and scaling up Landcare in the future. Though the action research process is continuing, hence some of these reflections must be seen as provisional, there is a strong consensus emerging about the key elements of the Landcare experience in the Philippines.

## 2. LANDCARE IN THE CORE SITES

### Claveria

Quite independently of the Australian Landcare Program, Landcare in the Philippines grew out of a series of efforts to promote soil conservation innovations among farmers in the upland municipality of Claveria in Misamis Oriental Province, Northern Mindanao Region (Fig. 1). Claveria is located 42 km northeast of Cagayan de Oro City, the regional capital, to which it is linked by a paved road, hence farmers close to the municipal centre have reasonable market access. It has a total area of 82,500 ha, 71 per cent of which is classified as public land. Most of the municipality occurs at an elevation of 600-1,000 metres, rising to 2,500 metres at Mt Kimangkil. The terrain is rolling to mountainous, 33 per cent of the area having slopes of 50 per cent or more. Soils are well drained, of moderate depth, moderately acid, low in phosphorus and potassium, with low to moderate organic matter. Rainfall averages 3,200 mm, but is heaviest in the more elevated eastern part (upper Claveria) which is classified as continuously wet, whereas the western part (lower Claveria) has less rainfall in total and a distinct dry season from November to April. In all parts of the municipality, given the topography and the intensity of rainfall, soil erosion is a serious hazard.

Claveria became a municipality in 1950 and by 1998 had a population of around 41,000 in 24 barangays, the population having grown at over 4 per cent in the 1990s. Most of the population is of immigrant Cebuano origin (79 per cent), with indigenous groups making up less than 10 per cent. The overall population density is only 56 persons per square kilometre, but this includes sparsely inhabited terrain in the eastern and northern parts of the municipality – the density is around 148 persons per square kilometre in the more accessible barangays in the south-western part. There are 439 km of roads but 78 per cent are unsurfaced and become impassable with rain, hence transportation is difficult in much of the municipality. The area of agricultural lands is around 30,000 ha, but only around 16,500 ha are cultivated. Sixty one per cent of the lands are titled, while 16 per cent are tenanted. The average farm size is around 3 ha. The major crops are maize (51%), cassava (15%), tomato (10%), coffee (8%), and rice (8%), with maize dominating in lower Claveria and tomato and other vegetable crops in upper Claveria. In sum, Claveria, particularly in the more accessible south-western part of the municipality, is characterised by intensive, commercial, smallholder agriculture, for which the opportunity cost of soil erosion is high.

Claveria has been a field site for a succession of agencies concerned to promote conservation farming – the Department of Agriculture (DA), the International Rice Research Institute (IRRI), and the World Agroforestry Centre (ICRAF). The Misamis Oriental State College of Agricultural Technology (MOSCAT) is also located there and has trained many local farmers. The DA began promoting contour hedgerows of shrub legumes in Claveria in the early 1980s, in the form of the Sloping Agricultural Land Technology (SALT) package developed by the Mindanao Baptist Rural Life Centre (MBRLC) (Fig. 3). Up until 1985 these efforts were disrupted due to clashes between government forces and guerrillas of the New People's Army (NPA). In 1987, IRRI established a research site in Claveria and, in collaboration with the DA, initiated a farmer-to-farmer training program to enhance

adoption of SALT. Six farmers were sent to Cebu for training in the methods of establishing contour hedgerows and, between 1987 and 1989, these six trained another 175 farmers in seven farmer-to-farmer training sessions. By 1992 up to 80 farmers had adopted the technology. However, widespread and sustained adoption of the SALT package in Claveria was limited by the same factors that had inhibited its uptake in other sites throughout the Philippines, notably the high labour and skill requirements for establishment and maintenance, combined with the short-term opportunity cost of foregone production.



**Fig. 3** SALT demonstration farm at the Mindanao Baptist Rural Life Centre in Bansalan, Davao del Sur, showing maize growing in the alley between hedgerows of shrub legumes. The hedgerows are pruned at frequent intervals and the prunings placed in the alley to add nitrogen and provide mulch. The system is designed to use few external inputs but adoption has been hampered by limited access to planting materials and the high labour (and skill) requirements for establishing and maintaining the hedgerows. Farmers who have adopted SALT have invariably adapted and simplified the technology. NVS is one such adaptation.

ICRAF took over the IRRI research site in Claveria in 1993 and proceeded to conduct field trials on contour hedgerow systems. In 1996 ICRAF identified a low-cost, farmer adaptation of contour hedgerows, namely, the use of natural vegetative strips (NVS) as an alternative to the more complex, risky, and labour-intensive method of establishing and maintaining hedgerows of shrub legumes or forage grasses (Fig. 4). An extension team, termed the Contour Hedgerow Extension Team (CHET), comprising a farmer who had adopted NVS, a DA extension agent, and an ICRAF technician, was formed to promote the NVS technology (though eventually the DA ceased to be involved). The CHET worked initially with individual farmers in various barangays but the interest was such that group sessions were organised, involving 20-25 participants. At one of these group-training sessions in 1996, 20

farmer leaders, at the suggestion of one of the ICRAF facilitators, decided to form a farmer organisation to promote conservation farming, particularly the NVS system, within the Claveria community. The organisation was named the Claveria Landcare Association (CLCA), the name “Landcare” being taken from a logo painted on the ICRAF vehicle used to transport farmers during field visits.



**Fig. 4** Natural vegetative strips (NVS) are established by ploughing on the contour and leaving an unploughed strip at intervals to act as a barrier to the movement of soil down the slope. This technique has been found effective in controlling erosion on continuously cultivated land, resulting in the formation of terraces within about three years. Unlike SALT, there is no need to establish hedgerows from seed or cuttings, and the labour and skill requirements are substantially reduced. As seen here, farmers can then begin to enrich NVS with crops like bananas or tree crops.

The CLCA, being a municipal-wide organisation, moved quickly to form local groups and recruit new members at the barangay level (chapters) and sitio level (sub-chapters). ICRAF supported the CLCA in the conduct of training sessions and cross-farm visits, which were also used as a means of recruiting new members and forming chapters and sub-chapters. The recruitment drive initially raised suspicions among local government officials such as barangay captains who, as a consequence, were invited to become involved in meetings and other activities of the CLCA. This soon resulted in widespread support from local government units (LGUs), particularly at the barangay level, including financial contributions and even legislative backing for adoption of the NVS technology. Many of the CLCA leaders were at the same time barangay officials.

Thus the Landcare Program in Claveria had developed into a triangular partnership between the CLCA (a municipal-wide farmers’ organisation, working to encourage conservation farming among its members), ICRAF (an international research

organisation, providing technical and logistic support and facilitation), and the LGUs (providing government resources and official support for the Association). There was a significant commitment of ICRAF staff to the Landcare Program, peaking in 2000 with the involvement of the principal scientist, one full-time researcher, one training officer, and six Landcare facilitators, as well as a Landcare vehicle and driver. ICRAF's expenditure on Landcare in that year was an estimated PHP 4.5 million (USD 90,000), reducing steadily to PHP 600,000 (USD 12,000) in 2003.<sup>1</sup> This commitment was a major factor in maintaining the impetus of the CLCA in the early years.

As a result of the efforts of its leaders and the support of ICRAF, by early 2000 the CLCA had grown to include 16 chapters, 105 sub-chapters, and about 800 individual farmer-members. Group formation usually followed a training session, a meeting, or a cross-farm visit. Landcare groups were formed around the establishment of communal nurseries and NVS, with members ranging from 15 to 50 farmers or households. Farmers helped in constructing nurseries and assisted each other in establishing NVS through group work or *hunglos*. However, after attending a training session or a slide show, some farmers who were only interested in NVS or had more resources (e.g., family labour and money) went on to establish NVS without group support, and without claiming Landcare membership.

Adoption of NVS technology increased dramatically, from about 75 ha in 1996 to more than 300 ha in 1999. By mid-2003, the number of farmers adopting NVS and/or agroforestry practices was 1,844, or 27 per cent of the total number of farming households in Claveria (Fig. 5). Of these, 90 per cent had adopted the practices during the period of the Landcare program. The aggregate area on which these conservation measures were implemented had increased to 1,820 hectares by 2003, representing 11 per cent of the total cropped area in Claveria. Sixty eight per cent of this area (1,245 hectares) was under NVS. Once the NVS were in place, many farmers enriched them by planting pineapple, banana, timber trees, and fruit trees to make productive use of the land under NVS.

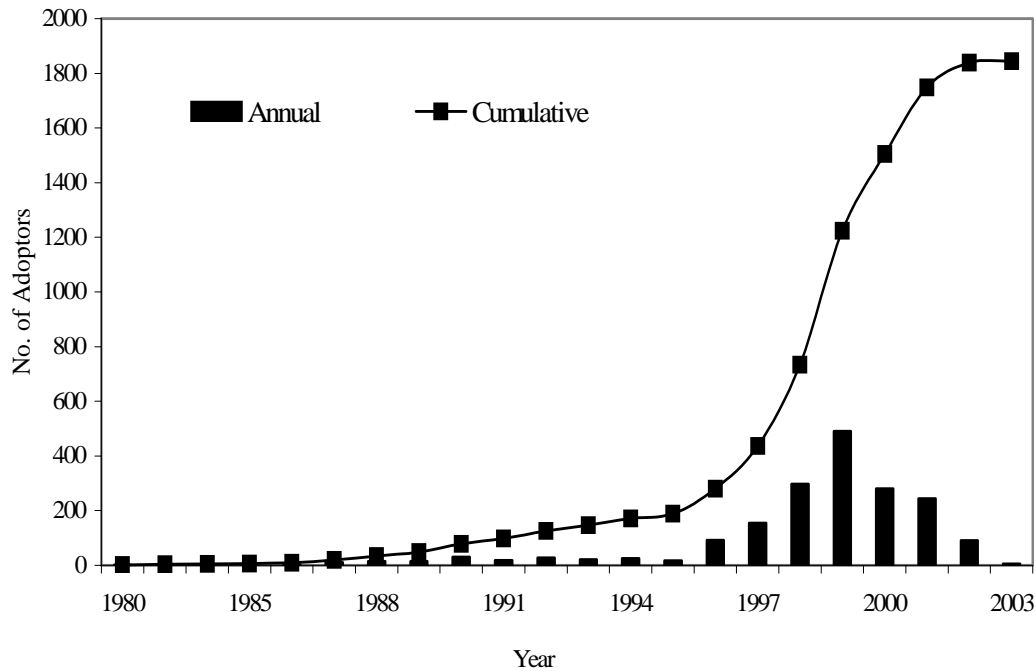
Arcenas reports that all partners credited the farmer-to-farmer extension approach of the CLCA as the principal factor in this accelerated adoption. Based on data from a survey of 274 farmers conducted in 2000, he analysed the factors affecting the adoption of contour ploughing (the precursor to NVS), finding that the likelihood of adoption increased with participation in Landcare training sessions, the slope of the farm, the area of the farm, and attendance at sitio meetings. Landcare membership as such was not a statistically significant factor.<sup>2</sup>

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<sup>1</sup> Over the same period the Municipal Agriculture Office (MAO) had 10 agricultural technicians and an average annual budget of PHP 2.6 million (USD 52,000), 70 per cent of which was for personnel. Thus ICRAF's Landcare expenditure was equivalent to 58 per cent of the MAO budget in 2000 and 23 per cent in 2003.

<sup>2</sup> Agustin Arcenas, Farmer-Led Soil Conservation Initiative in a Developing Country Setting: The Case of Claveria Land Care Association, PhD dissertation, Michigan State University, 2002.

However, the annual rate of adoption dropped dramatically – from nearly 500 in 1999 to only five in the first half of 2003. The extent of adoption in subsequent years has not yet been accurately determined, but interviews with local Landcare leaders by ICRAF staff indicate that there were about 2,090 adopters of NVS and agroforestry in mid-2006, a 13 per cent increase from the 2003 figure. This suggests that the rate of adoption has indeed begun to level off (though a number of existing adopters are further developing their conservation farms by integrating livestock, tree crops, and other activities). This slowing in the rate of adoption may indicate



**Fig. 5** Annual and cumulative adoption of NVS and agroforestry practices in Claveria, 1980 to mid-2003. (Source: ICRAF Claveria)

that the total number was approaching a natural adoption ceiling. It may also have been related to the reduction in ICRAF support for the program in Claveria as it sought to scale up the approach to other sites in Misamis Oriental.

At the same time, there was a loss of impetus among many of the Landcare groups and in the CLCA itself. An assessment by ICRAF staff in 2006 suggests that only 7 Landcare chapters (32 per cent) and 28 sub-chapters (27 per cent) were still active (though key informants could point to over 1,100 “Landcare farmers”, which is more than in 2000). In response, the current Landcare team has concentrated on reinvigorating and strengthening the capacity of the CLCA through strategic planning exercises, leadership training, team building, cross-site visits, developing skills in writing proposals, and helping to establish and train a farmer training team (FTT). These efforts are bearing fruit, underlining both the importance of the Landcare Association to sustaining the municipal Landcare program and the need for ongoing support from professional Landcare facilitators to achieve this.

## **Lantapan**

The success of Landcare in Claveria encouraged ICRAF in 1998 to introduce the approach at its Central Mindanao field site in the Municipality of Lantapan in Bukidnon (Fig. 1). Lantapan occupies 33,000 ha between the upper reaches of the Manupali River and the Mt Kitanglad Range. The landscape rises from river flats at 400-600 m in the south of the municipality to mountainous terrain at 1,100-2,200 m in the north. Soils are generally clayey, moderately acid, of low fertility, and susceptible to erosion. Rainfall averages 2,500 mm, 70 per cent falling in the wet season from May to October.

Lantapan has experienced major demographic and economic changes over the past half century. In that time, the indigenous Talaandig have become a minority as immigrants from the Visayas and Luzon have taken up land and introduced more intensive farming practices. The population increased from under 1,000 in 1948 to over 43,000 in 2000, resulting in a population density of 136 persons per sq. km and a modal farm size of 1-3 ha.

Hence shifting cultivation of rice and other crops for subsistence has given way to continuous cultivation of maize for both subsistence and sale, and the production of an array of vegetable crops such as beans, tomatoes, cabbages, and potatoes, destined exclusively for urban markets to the north. More recently, the spread of sugarcane cultivation and the establishment of three large banana plantations have further transformed the landscape in the more productive and favourably situated parts of the municipality. The net effect of changes in land use is that forested land has declined while annual cropping has expanded as the agricultural frontier has been pushed higher in the landscape, resulting in the rapid degradation of soil and water resources. Apart from the growth of large-scale agribusiness ventures, the biophysical and socioeconomic context is similar in many respects to Claveria.

Again, as in Claveria, outside agencies have for some time sought to have an impact on farming in Lantapan, both to reduce poverty and protect critical natural resources. In particular, a consortium of researchers within the USAID-funded Sustainable Agriculture and Natural Resource Management (SANREM) Program, including ICRAF researchers based in Sungco, helped pave the way for a community-based approach in partnership with local government. Hence, even before the Landcare Program was launched, there had been some progress in forming farmer groups, providing training in soil conservation and agroforestry, and developing local government plans for natural resource management.

The Landcare Program in Lantapan built on ICRAF's experience with Landcare in Claveria and the opportunities created by the SANREM program. Initially the strategy was to build Landcare into the municipal program for agricultural extension and natural resource management, but a change in the administration following local government elections meant that ICRAF had to take most of the responsibility for the Landcare Program. This involved an investment of about PHP 1.2 million (USD 24,000) per year, mainly for a dedicated and well-qualified staff of two senior facilitators and four "intern" facilitators, but including sufficient support for travel and production of extension materials. These funds mainly came from the Spanish Agency for International Cooperation (AECI) and ACIAR. It was a sizeable

commitment, though only about a quarter of the annual expenditure on the Claveria program at its peak in 2000. The facilitators initiated an information campaign, organised farmer-based training in NVS and tree nursery techniques, and fostered the formation of local Landcare groups.

There was rapid formation of Landcare groups, soon growing to 62 local groups with 840 registered members (though in practice membership was quite informal), linked in the Lantapan Landcare Association (LLCA) (Fig. 6). These groups were an important source of information on conservation practices for their local community and encouraged members and others to work together, especially in the establishment and maintenance of communal Landcare nurseries.



**Fig. 6** Members of the Lantapan Landcare Association together with Landcare facilitators in front of the first Landcare centre (now relocated to Sungco).

However, many groups became inactive once the initial adoption of NVS and/or tree planting had occurred, and especially in those barangays where the expansion of banana plantations and other agribusiness ventures had led to the demise of smallholder farming. The too-rapid expansion of the Program may also have been a factor in the subsequent decline of group activity, limiting facilitators' capacity to follow up existing groups. By mid-2003 the number of active groups had dropped to 12 (20 per cent), while 45 groups (73 per cent) were reported to have disbanded (though individual members may still have participated in Landcare activities and some groups had the potential to re-form around new activities). By 2006, the proportion of active groups had dropped to 12 per cent.

The LLCA has continued to function throughout this period, though there has also been a loss of momentum at this level. As in Claveria, the focus of the current Landcare team has been to work with the Association's leaders to reinvigorate the organisation. This has involved:

- linking the Association with two prominent Landcare farmer-entrepreneurs to provide technical support, particularly in product development and marketing;
- developing closer interaction between the Association and two related groups, the Agroforestry Tree Seed Association of Lantapan (ATSAL) and the recently established PAGLAMBU, a vegetable production and marketing group;
- facilitating linkages with the municipal government, the Landcare Foundation of the Philippines Inc (for project funding), Syngenta Foundation (for training in integrated crop management), and the ICRAF Tree Seed Systems in Communities (TSC) Project (for training in the production of quality germplasm);
- supporting a farmer training group to provide training to local and visiting farmers at the recently constructed LLCA Training Centre in Sungco.

The recorded rate of adoption of natural vegetative strips (NVS) during the first five years of the Landcare program was impressive at over 50 adopters per year to the end of 2002, though adoption had already begun to accelerate when ICRAF was working informally with farmers as part of the SANREM Program. The adoption curve was very similar in form and magnitude to that for Claveria (Fig. 4 above). This suggests that the characteristics of the NVS technology itself and the use of practical, farm-level demonstrations were key elements in achieving rapid adoption. These elements were continued in the Landcare program, along with more intensive training and organised cross-farm visits.

An analysis of the factors affecting adoption of NVS, based on a survey in 2002 of 104 farmers in one barangay (Sungco), showed that the most important variable was participation in Landcare training, increasing the probability of adoption from 0.17 to 0.88. The other significant factors explaining adoption were age cohort (with farmers in the 30-59 year bracket more likely to adopt than either younger or older farmers), full-time farming, farm size, location in the upper watershed, and slope – all positively affecting the likelihood of adoption. Membership of a Landcare group on its own was not a statistically significant factor. These results are consistent with Arcenas's findings for Claveria, cited above.

By the end of 2002 there were about 400 adopters of vegetative contour barriers, or 7 per cent of all farm households in Lantapan. The area of land under contour barriers averaged about 1.2 ha per adopter (less than half the average farm size) and totalled about 500 ha. This was about 3 per cent of agricultural land in Lantapan, 6 per cent of land used for maize and vegetables, and 10 per cent of land identified as “environmentally critical”. On about 40 per cent of the area protected by NVS, adopters had enriched their contour strips by planting horticultural crops, forage grasses, shrubs or trees (Fig. 7). Based on the household survey in Sungco, the perceived impacts of NVS adoption at the farm level were that soil erosion was reduced, soil fertility was maintained, and terraces were formed. There was not a clear perception of short-term impact on crop production or farm income, a perception that was confirmed by bioeconomic modelling. In the longer term, these impacts were likely to come about, first, because yields of field crops were maintained relative to yields from unprotected land and, second, because of a transition to a more diversified and profitable farming system as NVS were progressively enriched with productive crops.

In addition to the adoption of NVS, by 2002, 64 community nurseries had been established and 162,000 trees planted on farms. Though tree planting had also been underway during the preceding three years or so, the additional impact of the Landcare Program on tree planting was more marked than on NVS adoption. This reflects the particular interest of farmers in the income-earning potential of various fruit and timber tree species and hence the early emphasis on training in nursery management techniques. There were 585 adopters of tree planting recorded by the end of 2002, or about 11 per cent of farm households. The area planted was around 660 ha (about 1.1 ha per adopter), accounting for about 4 per cent of agricultural land, 8 per cent of maize and vegetable land, and 13 per cent of “environmentally critical” land.

Combining adopters of the two main conservation measures – contour barriers and agroforestry – there were about 862 adopters by the end of 2002, or 16 per cent of the total number of farm households in Lantapan (though not all households were potential adopters). The total area under conservation measures was about 1,150 ha (43 per cent under NVS and 57 per cent under agroforestry), or about 1.3 ha per adopter. This was 7 per cent of agricultural land, 14 per cent of maize and vegetable land, and 23 per cent of “environmentally critical” land, suggesting a significant impact at the landscape level.



**Fig. 7** Enrichment of NVS with tree species in Lantapan.

However, as in Claveria, the rate of adoption had begun to slow. Hence by the middle of 2006 the total number of farmers adopting NVS and agroforestry practices was 977, an increase of 13 per cent over three years. However, the total area under these conservation measures had increased by 40 per cent to 1,620 ha, suggesting that existing adopters were extending the proportion of their farms under conservation measures. About 70 per cent of adopters were Landcare members.

## **Barangay Ned**

With the commencement of the first ACIAR Landcare Project in 1999, a third core site – Barangay Ned in South Cotabato Province, Southern Mindanao – was brought into the Landcare Program (Fig. 1). Previous projects implemented in Barangay Ned by the SEAMEO Regional Centre for Agriculture (SEARCA) (including an earlier ACIAR-funded project) had sought to develop and promote conservation farming technologies, partly through the formation of farmer work-groups. Hence this site was readily included in the Landcare Program, providing a further opportunity to test the replicability of the Landcare approach as it had evolved in Claveria and Lantapan. The particular significance of the Ned site is that it was outside the sphere of ICRAF's activities in Northern Mindanao and was much less favourably situated, both in terms of location and the presence of other agencies – government or non-government. Hence it provided a test of the adaptability of the Landcare approach in a situation of limited resources.

Barangay Ned encompasses an area of over 41,000 ha (larger than Lantapan), comprising the Ned Settlement Area (22,000 ha) and a forest reservation (19,000 ha). In 2000 it had a total population of nearly 15,000, grouped into 30 sitio, hence it is on the verge of being declared a separate municipality. The population density in the settlement area averaged around 65 persons per sq. km, but was higher in the northern half of the area, which had primitive road access. Barangay Ned was established in 1962, but poor accessibility and lack of security hindered development until the early 1980s, when settlers began to arrive from the lowlands. In the 1990s the Department of Agrarian Reform (DAR) allocated titles to 5,575 beneficiaries occupying 16,700 ha, or 75% of the settlement area. DAR also took responsibility for coordinating rural development in Ned, and in 1992 contracted SEARCA to implement the Ned Agro-Industrial Development Project (NAIDP), which included a component promoting conservation farming.

The climate in Ned is characterised by abundant rainfall (averaging 2,200 mm) uniformly distributed throughout the year, high levels of humidity and cloudiness, and moderate temperatures (averaging 21°C) due to an average elevation of 900 m. Hence continuous cultivation is feasible and a wide range of crops suited to tropical and sub-tropical environments can be grown. The terrain is rolling to mountainous, with dominant slopes of 12-40 per cent. The soils are predominantly neutral to acidic sandy-loams with a clay B horizon, of low to moderate fertility, and highly susceptible to erosion. Permanent cropland accounts for about 14,000 ha (64 per cent of the settlement area), including maize (8,000 ha), upland rice (2,000 ha), and other crops (4,000 ha). Grassland accounts for about 2,750 ha (12 per cent), and forest land (mainly degraded forest with small pockets of primary forest) for perhaps 4,500 ha (20 per cent). Access to Ned is via a former logging road, which becomes impassable after heavy rain, severely restricting the market potential (Fig. 8). Employment is largely confined to agriculture, whether on- or off-farm; there is little non-farm employment available. Farm size averages just over 3 ha. While most farmers have titles to their land, issued by DAR in the 1990s, many landowners have rented or mortgaged part or all of their land, hence a significant proportion of farmers are not owner-operators.

Though indigenous farmers once practised shifting cultivation of upland rice, the farming systems of both indigenous and migrant farmers now involve continuous cultivation of maize and (to a lesser degree) rice. Use of hybrid maize seed and inorganic fertiliser is increasing. The typical cropping pattern involves two crops per year, with upland rice or maize cultivated in the first season and maize in the second. Maize is mainly cultivated for sale, while upland rice is mainly for home consumption, though maize is also consumed as a staple. Neither maize nor upland rice cultivation involved the use of soil conservation measures until NAIDP's introduction of contour hedgerows (SALT) in the mid-1990s, which over 100 farmers had at least partially adopted.



**Fig. 8** Access to Barangay Ned is via a former logging road and is time-consuming, costly and unreliable. This limits the market potential for Ned farmers, as well as making it difficult to use Ned as a “demonstration site” in the same way as Claveria and Lantapan.

The Ned Landcare Program, commencing in 1999, was well placed to build on the conservation farming component of the NAIDP and the on-farm research of an earlier ACIAR-funded project. As the implementing agency for both projects, SEARCA could provide institutional continuity for the Landcare Program, including first-hand awareness of the successes and failures of the previous efforts. Most important, the Landcare Facilitator had five years experience working for the ACIAR on-farm research project, developing and testing new farming practices with farmers and researchers. Thus the legacy of the two previous projects was that: (1) the Facilitator had considerable locally-validated technical expertise, as well as credibility in the farming community; (2) there was already a pool of farmers around Kibang who had adopted contour hedgerows, experimented with alternative annual and perennial crops, and learned the benefits of working and learning

together in small groups; and (3) there was experience in working with part-time, paid farmer-trainers.

As part of the larger Landcare Project, the Ned Landcare Program brought two new emphases: (1) the promotion of natural vegetative strips (NVS) and (2) the formation of community Landcare groups, linked in a barangay-wide Landcare Association. Apart from the emphasis on groups, the Landcare Program was primarily a program of extension and training in technical aspects of farm development, including conservation measures and the establishment of new crops, especially perennials such as coffee, durian, and other fruit trees. Farmers' interest in acquiring planting materials and technical knowledge for crop diversification was used as the "entry point" to encourage both adoption of conservation measures and membership of Landcare groups.

As in Lantapan, there was rapid formation of Landcare groups over the first three years of the Program. By 2002 there were 39 groups with 366 members, roughly 13 per cent of farm households in Ned. Whereas the Landcare Facilitator had initiated most of the groups formed in the first 12-18 months of the project, the appointment of up to five part-time farmer-facilitators in mid-2000 meant that they took most responsibility for forming and supporting groups from that time, working as intermediaries between the Landcare Facilitator and the groups. Farmers also formed groups on their own initiative, and in some cases helped neighbouring groups to get established. The growth in total Landcare membership followed a similar path to the total number of groups.

The Landcare groups primarily helped members to establish NVS, implementing these measures on about 50 ha a year (again, similar to the rate of adoption in Lantapan). In most cases group activities (such as meetings and group work) declined once most members had been helped to implement contour barriers. The ongoing interest in fruit tree production was largely met through establishment of individual rather than group nurseries, though Landcare membership provided access to group training events and assistance from facilitators. However, a few groups had developed sufficient momentum to move beyond the initial focus on conservation farming, developing their own projects to meet the needs of members, e.g., for cheaper farm inputs and medicines. The Ned Landcare Association (NLCA), formed in 1999, comprised the leader of each Landcare group as well as the Landcare Facilitator and staff of other agencies. It was an active association, no doubt helped by the involvement of the Facilitator. It met quarterly to exchange information, planned and organised barangay-wide Landcare activities, and took initiatives on behalf of the Landcare groups, securing grants and loans for nursery materials and seeds.

Based on a survey of 313 households in 2002, over a third of farmers in Barangay Ned (38 per cent) had adopted conservation measures (vegetative barriers, physical barriers, and/or tree planting), nearly four times the number of Landcare members. The conservation measures affected about 16 per cent of the total cultivated area. However, as they were adopted preferentially on steeply sloping land, the impact of adoption on the catchment as a whole would have been greater than the figure of 16 per cent suggests. In most cases the adopted measures were considered effective in controlling erosion and had been maintained or expanded. Further expansion of

vegetative or physical barriers on adopters' farms was slow, but expansion of tree planting, especially fruit trees, was underway. There was evidence that diffusion of conservation practices to additional farmers was still occurring. The primary reasons given for adopting (or planning to adopt) conservation measures were to control erosion and restore soil fertility. Prospective adopters were also hoping to receive benefits from the Landcare Program, especially fruit tree seedlings. The main reasons given for not yet adopting were the lack of time or interest, the perceived difficulty of maintaining contour hedgerows, and lack of ownership rights to the land.

An analysis of the factors affecting adoption of contour barriers indicated that the most influential variable was training (primarily but not exclusively through the Landcare Program), which increased the probability of adoption from 0.13 to 0.51, controlling for the influence of the other variables. Landcare group membership increased the probability of adoption from 0.13 to 0.30, other things being equal. Landcare groups built on the knowledge and skills acquired in formal training events to help members implement the contour farming measures on each other's farm. Importantly, they also helped farmers stay in touch with Landcare facilitators and the wider Landcare network, keeping them informed and providing encouragement to implement conservation measures. If a farmer had both undergone Landcare training and joined a Landcare group, the probability of adoption increased from 0.13 to 0.75, or nearly six times. Other variables also influenced the odds of adoption – older, more experienced, and better educated farmers who were also landowners were more likely to adopt. Adoption also varied by geographic zone, being more likely in the zones of intermediate accessibility than in either the most or least accessible zones. Farmers in the most accessible zone, though close to the headquarters of the Landcare Program, had a wider range of livelihood options, hence soil conservation may not have ranked as highly. Farmers in the least accessible zone were indeed very remote, hence could not be followed up as easily, and were subject to periodic security problems, at times requiring evacuation. Hence their capacity to implement conservation measures was seriously restricted.

Under the current Landcare project, a full-time Landcare facilitator has been based in Barangay Ned to continue working with the NLCA and with three farmer-facilitators. This has helped to sustain the activities of the Association and many of its constituent groups, hence involvement in Landcare remains at a high level. Of 271 respondents interviewed in 2005, 29 per cent were current Landcare members, 12 per cent had previously been Landcare members but had dropped out, and 59 per cent had never joined a Landcare group. Of those who had ceased involvement the most common reasons were that there was no-one to follow up meetings and activities or that the local group had disbanded. Likewise, although the rate of adoption had slowed, 35 per cent of farmers surveyed in 2005 were adopters of one or more conservation measure, accounting for about 29 per cent of adopters' farm area and 11 per cent of the total farm area in the surveyed sites. The overall incidence of adoption disguised a fair degree of turnover in the adopter numbers. An analysis of 286 households that were surveyed in 2001 and could be identified again in 2005 found that, while there were 45 "new adopters" in the latter survey, there were also 28 "dis-adopters", giving a net increase of only 17. It is likely that this turnover is occurring in the other sites as well.

## Summary and Conclusion

The Landcare program followed a similar pattern in the core sites, focusing on (a) group training of farmers in soil conservation (especially NVS) and agroforestry (especially nursery management), with a high degree of involvement of farmer-adopters in the training process; and (b) the formation of Landcare groups, linked in a municipal Landcare association. In all sites there was (a) rapid adoption of soil conservation and agroforestry technologies and (b) rapid formation of Landcare groups. This was partly due to the legacy of programs undertaken by ICRAF, SEARCA or other agencies before the Landcare Program began. However, the Program significantly accelerated the adoption process. After 3-5 years, around a third of farmers in each site had adopted soil conservation and agroforestry technologies, affecting from 10 to 15 per cent of the total farm area in the site. There was clear evidence that adoption had a significant impact on reducing soil erosion. The impact on yields and farm incomes was longer term and was primarily a function of the changed cropping practices implemented on the contoured farms (e.g., the planting of crops with greater commercial value).

The rapid adoption was primarily due to the practical, farmer-based training provided, giving farmers the knowledge and skills they needed to implement a technology they considered useful. There was also evidence that many farmers learned the technology directly from neighbours who had previously undergone training. The personal follow-up provided by Landcare facilitators and, in many cases, Landcare leaders, was also very important. The commitment and skills (technical and organisational) of the Landcare facilitators in each site were crucial to the success of the Landcare program.

Adoption was positively associated with Landcare participation, allowing for factors such as age, education, gender, ethnicity, place of origin, farm size, and tenure status. Group membership as such was not as important as participation in Landcare training. Farmers joined Landcare groups primarily to access training, technical advice, and assistance (e.g., with planting materials), and to be part of a wider Landcare association, linking them to people and resources beyond their immediate community. The Landcare associations, working on behalf of the local groups and in conjunction with the Landcare facilitators, were influential in organising training and accessing outside resources, e.g. from local and provincial government.

In all core sites, the Landcare program sought to collaborate with local government units (LGU), especially at the municipal and barangay levels. The level of collaboration varied significantly over time and from place to place, but overall the Landcare program induced positive changes in LGU support for community-based natural resource management initiatives. However, in terms of the adoption of conservation practices, similar results were achieved with or without strong LGU support, indicating that the role of the technical Landcare agency (ICRAF, SEARCA) was crucial. This was especially the case once the first wave of rapid adoption and group formation had passed. On-going support from the Landcare agency for the local Landcare association was particularly important in sustaining the Landcare program in the core site, as well as providing a working example for scaling-up sites.

### 3. SCALING UP LANDCARE FROM THE CORE SITES

#### **The First Phase: 1998-2003**

From an early stage ICRAF experimented with scaling up the Landcare approach to nearby municipalities in Misamis Oriental and Bukidnon where it did not have a physical presence in the form of a field office and research trials. In all cases the approach was to work first with local government units at the municipal level, using the core sites as working examples of Landcare through organised cross-site visits, but with varying degrees of direct input from ICRAF personnel.

#### ***Malitbog***

From Claveria, the approach was first extended to the neighbouring municipality of Malitbog in 1998. (Though Malitbog is part of Bukidnon, it is in fact more accessible from Misamis Oriental.) This was in response to the initial interest of farmers in NVS after a field visit to Claveria, organised as part of the Forages for Smallholders Project (FSP), which was being implemented in Malitbog by the International Centre for Tropical Agriculture (CIAT). The positive response of farmers to NVS resulted in more cross-site visits organised by the Municipal Agriculture Office (MAO) with the support of the Mayor.

As a consequence, ICRAF was encouraged to scale up the Landcare Program to Malitbog. An experienced Landcare facilitator was assigned to the municipality, working closely with the MAO. The agricultural officer and technicians were very enthusiastic, partly due to previous exposure to projects such as the FSP and AusAID's Pilot Provincial Agricultural Extension Project (PPAEP). Training in NVS and agroforestry was conducted, always including cross-site visits to Claveria. By 2003, eight out of the 11 barangays had participated and 51 sitio-level Landcare groups had been formed, with a total of 958 members. Two thirds of these groups were still active – monthly meetings were organised by barangay officials and were an anticipated social event. With municipal support, the groups were linked in the Malitbog Landcare Association (MLCA), modelled on the CLCA.

The same response was evident in the adoption of Landcare practices, with 123 farmers adopting NVS within the first year. By 2003 there were 510 farmers who had adopted NVS and/or agroforestry on a total of 390 ha, representing 16 per cent of households and 8 per cent of the cultivated area. In many cases forage grasses had been planted on the contour in conjunction with cattle dispersal programs implemented through the MAO (Fig. 9). Around 27,000 trees had been planted by 2003. The same S-shaped adoption curve seen in Claveria was evident, with the rate of adoption tailing off after the first few years of rapid adoption.

Thus with genuine interest from farmers (perhaps partly motivated by a desire to acquire more secure tenure over public forest lands), strong support from local government units at the municipal and barangay levels, active involvement of ICRAF personnel, and close proximity to Claveria, the success of Landcare in Claveria was able to be replicated in Malitbog. The current Landcare Project continues to provide an experienced Landcare facilitator to support the program in Malitbog.



**Fig. 9** Contour strips of forage grasses in Malitbog, introduced through the Forages for Smallholders Project.

### *Libertad*

Starting in 2000, with support from the ACIAR Landcare Project, ICRAF experimented with scaling up the Landcare approach to other municipalities in Misamis Oriental at further remove from the Claveria site. This included Libertad, a small, coastal municipality at the western end of Misamis Oriental, and Sugbongcogon at the eastern end. An analysis of the experience in Libertad provides some insights into this early scaling-up effort.

The inland barangays of Libertad occupy undulating to steep land at 300-600 metres with calcareous soils of low fertility and high erodibility. Access is by an unsealed road in poor repair. The population density is around 230-240 persons per sq. km and is increasing. Hence farms are small and incomes are low. Maize and coconut are the dominant crops, with vegetable and fruit production on the increase. Poor soils, low input levels, and an ageing stock of coconut palms contribute to low productivity.

The Libertad municipal government was supportive of the Landcare Program, encouraging ICRAF's entry to the area and allocating two agricultural technicians (ATs) to act as Landcare facilitators, with only limited back-up from ICRAF. The involvement of ICRAF thus induced a temporary reallocation of available agricultural staff-time to the inland barangays. The response of farmers was initially positive as they had been relatively neglected by agricultural extension services in the past. Two of the inland barangays had an existing agrarian reform association that took on the functions of a Landcare group. The most remote barangay formed three Landcare groups.

A sample survey in two barangays in 2002 found that about 43 per cent of respondents were Landcare members and about 37 per cent had adopted NVS, accounting for 10 per cent of the total farm area in the survey. In most cases the vegetative strips had been enriched with bananas or other crops. Adopters were more likely to be Landcare members and to have undertaken Landcare training.

According to informants, most members joined a Landcare group to learn about soil conservation measures – specifically, NVS – and to see what other benefits they might obtain, such as free planting materials. Some felt obliged to join to obtain a land title or because they were persuaded by the ATs. There was early interest generated by cross-site visits to Claveria and the training in NVS and nursery practices. However, the interest in group activity waned after the first year as visits by the ATs became infrequent. Group members expressed a need for on-going support from a Landcare facilitator if they were to remain active and cohesive.

The Libertad case provides an example of scaling up Landcare primarily through the Municipal Agricultural Office, but with limited backup from ICRAF. It shows the initial responsiveness of farmers in such marginal upland environments to the scaling up of Landcare and the adoption of conservation farming, particularly among those who were somewhat better resourced. However, scaling up through the Municipal Agricultural Office, without the provision of additional resources and incentives, can result in dissipation of enthusiasm and loss of direction. This case suggests that regular contact with a committed Landcare facilitator over an extended period is needed for local Landcare groups to be sustained.

### ***Other Sites in Bukidnon***

Similarly, the scaling up of Landcare from its base in Lantapan to other municipalities in the Province of Bukidnon, starting in 2000, met with some initial success but required on-going support for this to be maintained.

In Manolo Fortich the influence of a strongly supportive mayor led to the mobilisation of agricultural technicians and barangay-level facilitators and the formation of 18 Landcare groups. Because of the availability of off-farm employment in that municipality, farmer interest was more in agroforestry than NVS. However, communal nurseries were not well maintained and much of the impetus of the Landcare Program was lost with a change of administration following the 2001 local government elections.

This site was followed up in the current Landcare Project from 2005, with the emphasis again being on working with the municipal government, both the Municipal Agriculture Office (MAO) and the Municipal Environment and Natural Resources Office (MENRO). This involved planning workshops and cross-site visits for local government officials, as well as collaboration in farmer training, with the result that Landcare is now integrated in the programs of these two offices. However, by mid-2006, despite 17 training events for 228 farmers, the number of adopters of conservation practices was only 44, affecting an area of around 16 ha.

In Malaybalay City the emphasis again was on working through the existing local government structures, providing initial orientation and training to agricultural

technicians and other staff. Farmers here were more interested in learning how to implement NVS and adoption was encouraging. However, there was no formation of Landcare groups, the existing barangay-level or other community institutions being considered adequate for the task. This site was not followed up. Data from the Municipal Agriculture Office indicates around 76 adopters.

In both these cases, the approach of embedding Landcare programs in municipal structures, with only limited, indirect support from ICRAF, meant the programs were insufficiently resourced and less resilient to political and other changes than in Lantapan, where a substantial ICRAF presence was maintained. Nevertheless, with continued follow-up, there was the prospect of seeing Landcare progressively integrated in municipal extension activities, with appropriate budgetary support. The current project has recently included Maramag in southern Bukidnon as a scaling-up site, in collaboration with various municipal and province-wide initiatives.

## **The Second Phase: 2004-2007**

### *Overview*

In the current Landcare Project scaling up has taken two forms. On the one hand, ICRAF efforts in Misamis Oriental and Bukidnon have been given further support through the activities of a Landcare Coordinator and two Landcare Assistants in each province. This has involved a range of strategic interactions with provincial and municipal governments in an effort to get Landcare “mainstreamed”, that is, integrated in local government extension programs and budgets. At the same time, direct technical support and facilitation has been given to Landcare groups and activities in selected sites, termed “satellite learning sites” or “focus sites”.

Thus in Misamis Oriental, support continues to be given to the Claveria and Malitbog Landcare Associations, as well as to Landcare groups in Alubijid in the west and Kinoguitan in the east. In the latter two sites the promotion of conservation practices through technical training, cross-site visits, and the formation of a farmer training group has been effective, with around 100 adopters of NVS in Alubijid and 50 in Kinoguitan, but the involvement of the municipal agricultural offices has been hard to sustain (as previously found in Libertad).

In Bukidnon, support is given to the Lantapan Landcare Association and to revitalising Landcare activities in Manolo Fortich to the north and, more recently, initiating a program in Maramag to the south. Since 2005, over 200 farmers have been trained in Manolo Fortich, resulting in 44 adopters of NVS and agroforestry on about 16 ha.

The second form of scaling up has been more challenging as it involves establishing a Landcare program in three other provinces (a) with little or no previous exposure to Landcare, (b) in environments that differ from the core sites, (c) involving not only ICRAF but other organisations with different modes of operation (Fig. 2). As in the first two provinces, the project has provided for a Landcare Coordinator and two Landcare Assistants in each province (except for South Cotabato, where only there is only one assistant but resources for farmer-facilitators).

In Bohol, ICRAF is the implementing organisation and, as in both Claveria and Lantapan, it has had the advantage of building on its previous and on-going agroforestry research activities, in this case in the municipality of San Isidro in western Bohol, where there was already some adoption of NVS. Nevertheless, the Landcare team has introduced Landcare concepts and activities in two additional municipalities in eastern Bohol – Pilar and Alicia. The approach has been to work very closely with the three municipal governments, which have provided: (a) their own Landcare coordinators, (b) funds and logistical support for training of barangay-appointed “farmer technicians”, (c) planting materials and fertilisers for early adopters, and (d) materials for constructing barangay nurseries. Adoption of conservation measures is proceeding rapidly, particularly in San Isidro, but gathering momentum in the other two sites, with over 200 adopters recorded by mid-2006. Given the strategy of working through existing municipal and barangay structures, there has not been the same emphasis on forming Landcare groups. It is planned to help existing formal and informal groups take on a Landcare function and ultimately to form a municipal Landcare federation like the Landcare Associations in Claveria, Lantapan, Malitbog, and Ned.

In South Cotabato, SEARCA has continued to support the Ned Landcare Association, contributing to its ongoing effectiveness, as described above. While Ned is clearly a successful core Landcare site, its remoteness from the rest of the province, and even from its own municipal headquarters in Lake Sebu, has made it less effective as a “demonstration site” (though various government departments have selected it as a pilot site for a “convergence” strategy). Hence scaling up in South Cotabato has had more in common with the other two “new” provinces, requiring an extensive process of assessing potential sites, communicating with officials of government and non-government organisations, and negotiating points of entry and partnerships. One distinctive factor in this province is that most upland municipalities have participated in the generously resourced Upland Development Project of the Department of Agriculture, involving the organisation of groups at the barangay level and the provision of inputs. In addition, there are many other government initiatives and NGO programs in place. Hence Landcare activities have focused on (a) providing training for existing groups and programs on farmer-led extension, tree nursery management, farm planning based on permaculture, vegetable production, soil conservation, and agroforestry, and (b) linking Landcare farmers with government resources, such seeds for maize, rice and vegetables, timber tree seedlings, and nursery materials. Because of the diverse nature of the activities with a range of partners, it has been difficult to monitor the impacts.

In Agusan del Sur, Catholic Relief Services (CRS) took on the task of scaling up Landcare under its Agriculture and Natural Resource Management Program. Although CRS has an extensive network of project partners, in practice the Landcare team had to follow a similar path to its counterparts in Bohol and South Cotabato in developing new partnerships with local government and other agencies in order to initiate a Landcare program. In this case, the point of entry was at the provincial level, with support from the Provincial Planning and Development Office and other provincial government units. This then led to involvement with the Municipal Agriculture Office in five municipalities, in each of which a Landcare coordinator has been designated. Other institutional partners include the Bayugan Water District (with whom the Bayugan Watershed Management Council was

organised) and the Research and Extension Office of the Agusan del Sur State College of Agriculture and Technology (ASSCAT). With these partnerships in place, the Landcare team has concentrated on organising training in both group management skills and technical aspects of conservation farming, including training over a period of six months to 29 barangay extension workers, with financial support from three municipal governments. The program in Agusan del Sur was helped by a visit of local officials and farmer leaders to Claveria and Lantapan, again demonstrating the importance of access to an established Landcare site. This was especially helpful in this province, where there was no previous exposure to Landcare-type activities, and a range of practices that might be considered at best peripheral to Landcare – notably “biodynamic farming” – were being promoted by program partners (with two enthusiastic mayors even issuing ordinances for the adoption of “biodynamic farming technologies”).

A central strategy of the current Landcare Project, given the increasingly diverse and widespread nature of the scaling-up activities, has been the formation of the Landcare Coordinators’ Network (LCN), linking the Landcare Coordinators in each of the five provinces. The LCN has functioned as an informal network within the project, facilitated by the Project Manager and Project Management Assistant. It meets quarterly, rotating between the five sites, with the meeting and field visits hosted by the local Coordinator. Communication is also maintained via an e-group account. Given that the Coordinators are employed by and report to three different organisations within the overall management structure of the Landcare Project, the LCN has not had a formal administrative role but has functioned primarily as a means of sharing ideas, experience, technical expertise, and extension materials, thus helping to maintain a consistent understanding of the Landcare approach, and as a way of coordinating cross-site activities, such as visits by LGU officials, project personnel and farmers from one province to another, or the meeting of Landcare Federations held in South Cotabato in December 2005.

### *Lessons*

The lessons from fostering Landcare programs in the scaling-up sites can be organised around five issues: the role of the Landcare agent; the role of other agencies (government and non-government) that collaborate in promoting Landcare; the approach to identifying and disseminating “Landcare practices” among farmers; the set of such practices that have proved relevant and adoptable; and the role of Landcare groups and associations.

**(a) Landcare agents.** Though Landcare is a grassroots, farmer-based process, the task of initiating and coordinating a Landcare program in any given province or site has been undertaken by a Landcare coordinator or facilitator, supported by Landcare assistants, working within a “Landcare agency”, whether ICRAF, SEARCA, or CRS. The formation of Landcare groups, the adoption of Landcare technologies, and the incorporation of Landcare in local government programs would not have occurred at the rate observed without the activities of such a team of Landcare facilitators. These teams collaborate with (and rely on) local government, farmer associations, NGOs, universities, government departments, and other actors, but play the crucial role of catalysing the Landcare process. In no case has Landcare been initiated or sustained without the presence of such a team.

The Landcare team requires two sets of skills that have not always been present in the required proportions: (i) management skills, needed to communicate the Landcare approach to a range of potential partners and to negotiate the commitment of personnel and other resources to the Landcare program; (ii) technical and scientific skills to help identify problems, critically assess potential solutions, train extension workers and farmers, and monitor and evaluate impacts. An important lesson is that thorough training in both the managerial and technical dimensions of the Landcare process needs to be provided if scaling up is to be effective.

The Landcare Coordinators Network has helped to link Landcare staff from the three agencies, share knowledge and skills, and coordinate cross-site Landcare activities. It has provided valuable insights into the need for and possible mode of operation of a Landcare support agency that would take over the functions currently provided by the three project partners. An adequately resourced and professionally managed Landcare support agency is crucial if the Landcare approach is to be effectively disseminated on a broader scale.

**(b) Collaborating agencies.** In all sites, collaborating with the municipal government – in particular, the Municipal Agriculture Office (MAO) – has been seen as the primary means of scaling up Landcare. This has been in recognition that the MAO has both the mandate and the long-term presence required to maintain a Landcare program. Where the mayor and municipal agricultural officer have been genuinely committed, and resources allocated for agricultural technicians (and in some cases barangay extension workers) to take on Landcare functions, the collaboration with municipal government has proved successful. In other cases, the early promise has not been realised, due to insufficient understanding or commitment in the first place, or the election of a new administration with different priorities.

In general, collaborating with local NGOs has not been as successful because NGOs tend to be project-oriented and driven by donor requirements. Moreover, they often have a particular emphasis, such as organic farming, that may hamper collaboration. Various other partners have been involved in particular sites, primarily to provide training in a specific area of expertise (such as pest management), but they have not been considered as primary implementers of the Landcare program.

**(c) Landcare extension.** The facilitation of group-based, farmer-to-farmer extension has been a characteristic feature of the Landcare program that has been crucial to its success, both in achieving rapid and sustained adoption and providing the basis for subsequent group formation and activities. The essential features have been:

- Information sessions in local communities using prepared extension materials (slides, flip charts) and group discussion of problems and priorities;
- Small group training sessions, with explanations by a resource person and hands-on demonstrations, often on participants' farms;
- Cross-site visits, within and beyond the local area, to see practising Landcare farms;

- The training and employment of farmers as Landcare extension workers (farmer facilitators, farmer technicians, farmer training groups, or barangay extension workers);
- The establishment of Landcare nurseries, providing a venue for collaborative activities and training, an initial source of planting materials, and early experience in nursery techniques that are then frequently applied on an individual basis.

**(d) Landcare technologies.** Landcare has worked well where it has been able to introduce farmers to readily adoptable practices that meet immediate needs. From the beginning, the NVS technology has been highly successful in this respect and has provided an entry point for Landcare facilitators. Though it is a practice that has been developed by farmers, its diffusion can be greatly accelerated through training sessions and farm demonstrations. It has formed the basis of Landcare extension in four of the five provinces, including Bohol with its markedly different geology and soils. Promotion of NVS has gone hand in hand with training in the propagation and establishment of trees on farms. In some sites vegetable production has been an additional focus. While the Landcare approach can be applied to a wide array of technologies, the comparative advantage of the Landcare teams has been in the introduction to farmer groups of simplified contour farming practices and agroforestry, of primary relevance to the sloping uplands.

The linking of conservation practices with productive technologies (vegetables, fruit trees, etc) has enhanced the adoptability of both, though attention has to be given to farmers' access to inputs and markets in each location. The vagueness of the notion of "Landcare technologies" has raised issues about the identification of Landcare with potentially controversial approaches, ranging from biodynamic farming on the one hand to agrochemical-based systems on the other. Informed debate about these issues is a necessary part of the Landcare process.

**(e) Landcare groups and associations.** In most sites Landcare groups have been established as a result of group information and training sessions. Many of these have continued to meet and work together. However, in other cases groups have become inactive within one or two years because of a perception that the original function has been achieved, a lack of follow-up, poor leadership, or major changes in the farming environment. In some cases groups were never seen as necessary because Landcare was being introduced through local government and the existing barangay structure was adequate, or other farmer groups were already in existence.

Where municipal Landcare associations have been formed they have played an essential role, both in supporting individual farmers and local groups and in providing an interface with local government and outside agencies. Landcare teams have invested in supporting and revitalising these associations, recognising that they lack the capacity to continue functioning effectively without on-going support. Even in scaling-up sites where local Landcare groups have not emerged, there is merit in forming an association to link and support individuals and groups that take on a Landcare function.

## **Summary and Conclusion**

Scaling up the Landcare program inevitably means taking a process that has worked well in one site and encouraging various players to implement the process in a new site. Hence it can never be a purely “bottom up” process. In practice, scaling up has involved professional facilitators from a “Landcare agency” (ICRAF, SEARCA, or CRS) taking the initiative to promote the Landcare process to key actors in local government units (LGU) at provincial and/or municipal level, then working in partnership to provide Landcare training and support to existing or newly formed farmer groups at the barangay level or below. These farmer groups may then take on a Landcare identity or at least incorporate a Landcare function, paving the way for the development of a local Landcare network or association.

In this sense, the “Landcare triangle” that emerged in Claveria, the first Landcare site, is being replicated, i.e., a three-way partnership between a Landcare agency, local government, and farmer groups and associations. Though the relative contributions of the three partners may vary from site to site, and other partners have been involved, the evidence is that some input from all three is required to initiate and sustain the Landcare process.

For this partnership to work effectively, it is crucial that Landcare facilitators, whether in government or non-government agencies, are adequately trained in the Landcare process, including working with farmers to identify their needs and networking with a range of agencies to help meet those needs, whether for new farm technologies, market information, key resources such as planting materials, financial resources, or training. It is not enough simply to recruit or redeploy staff and label them Landcare facilitators. There needs to be systematic exposure to the established Landcare sites and proper training in the Landcare process and technologies.

It is also important that Landcare facilitators are linked together, requiring resources and an organisational mandate and structure. This creates important synergies and is crucial to maintaining the momentum of the Landcare program when the political cycle causes LGU support to wax and wane and the farmer groups themselves go through normal processes of growth and decline.

## **4. LESSONS FOR FUTURE EXPANSION**

The lessons learned from the three core sites and the five scaling-up provinces can help in the formulation of a strategy for further expanding Landcare, possibly with national government and donor support. Though at first glance it may seem contradictory to contemplate fostering a “grassroots” or farmer-led process through a “top-down” program, in fact a broad-scale program can be designed to take account of the essential characteristics of Landcare as a farmer-led, group-based extension process.

It should first be said that, although Landcare is a process that can be adapted to many environments, it has been successful primarily in densely populated upland environments where continuous cultivation is practised and land degradation is a recognised problem. It is in this context that farmers are most interested in the set of

conservation farming practices that Landcare facilitators have introduced. Depending on the market context, these practices can be linked to more productive and sustainable farming systems (e.g., vegetable and tree crops), recognising that farmers are at bottom motivated by the prospect of enhanced livelihoods.

Within such contexts, the importance of the “Landcare triangle” needs to be acknowledged. The experience over 10 years indicates that a successful Landcare program requires the participation of a technical Landcare agency, the municipal government, and a farmer-led Landcare association. While each of these actors may come to the fore in particular times and places, as yet none of them is capable of taking on full responsibility for Landcare. Hence an expanded Landcare program should look for ways to channel support to each of these three key actors and provide incentives for their collaboration in delivering Landcare outcomes in particular localities.

In the post-project setting, this implies resourcing a professional, independent Landcare organisation or agency with a core staff of experienced Landcare facilitators who would work with farmer groups and associations, local government, line departments, universities, national and international research agencies, NGOs, and other groups. Such a Landcare organisation would take over the functions of the current Landcare Coordinators Network, which was set up as an experimental or embryonic agency within the terms of the Philippines-Australia Landcare project. This Landcare organisation could be merged with the current Landcare Foundation of the Philippines Inc, set up to administer the Landcare Trust Fund in Claveria and Lantapan. The governance structure of the organisation would need to be carefully considered but would retain the strong involvement of both Landcare leaders and the scientific community.

An expanded Landcare program would also provide resources to selected municipal governments to foster a local Landcare program. The selected local governments would have to demonstrate a willingness and capacity to work in partnership with the Landcare organisation and local farmer groups. Resources would be used to train and support staff in the field. Continued funding would depend on evidence of adopting a genuinely participatory and flexible approach.

Resources could also be used directly to encourage the activities of farmer-led Landcare groups and associations through leadership training, incentives, cross-site visits, market support, credit, and other activities as they are identified. That is, a prime focus of an expanded Landcare program would be to channel resources to accredited Landcare associations for their own capacity building and service provision to farmers.

An expanded Landcare program would continue to be an action research program, requiring the explicit allocation of resources for participatory monitoring and evaluation.