The story of landcare in the Philippines

Claveria – the birthplace

Soil erosion is a significant threat to Asia's productivity and prosperity. Caused by a combination of steep slopes, highly erodible soils, heavy rainfall, forest clearing and intensive cropping practices, it significantly reduces farm productivity and adversely affects water quality and storage, marine resources and biodiversity.

Sixty-five per cent of Asia's 1.6 billion rural people earn their livelihoods from farms located on steep slopes, where soil erosion rates are among the worst in the world. Most of Asia's population lives in rural areas, where there is high population growth, extreme poverty and insecure land tenure. So the impact of soil erosion is tremendous.

Nowhere is the problem more pronounced than in rural uplands of the southern Philippines, where it poses a grave threat to sustainable farming and poverty reduction. While lowland areas have much less soil erosion, they suffer the impacts of erosion from neighbouring upland areas, and have similar population growth and poverty problems.

Many projects have tried to tackle soil erosion but with little sustained success. Landcare is a relatively new initiative that takes a different approach. First used in 1996 in the northern Mindanao municipality of Claveria, Misamis Oriental, it brought together farmers, representatives of the Claveria Local Government Unit and technical facilitators from the World Agroforestry Centre. This special partnership helped farmers to tackle erosion by involving them in the development of conservation farming technologies for steep slopes, particularly the more farmer-friendly systems such as natural vegetative strips.

The farmers themselves coined the term 'landcare' to give the initiative an identity that emphasises the 'bottom-up' farmer-driven approach, which differs from the more traditional 'top-down' processes. The initiative was an instant success; landcare groups formed and farmers across Claveria adopted conservation farming technologies at a rate rarely before observed in the Philippines.

Farming households in the uplands are typically poor, isolated, vulnerable and threatened by land degradation. Through conservation farming and livelihood improvement, landcare offers a solution to this problem.

Marcelino's 'Garden of Eden' – a product of landcare

When Marcelino Patindol attended a farmers' forum on agroforestry in 1993, he had never heard of landcare.

'My farm was barren when I bought it in late 1990,' says the farmer from Claveria, Misamis Oriental in northern Mindanao. 'The vegetation was very poor; only cogon grass (*Imperata*) and wild fern grew on it. I started cultivating the land in 1992 when I retired from military duty, but after 2 years I had a very discouraging yield that couldn't even feed my family.'

The 25 farmers who attended the forum came from both upper and lower Claveria. 'I had no farming background so I grasped the information from that meeting,' says Marcelino.

After the forum, the farmers continued to work with researchers from the World Agroforestry Centre, meeting monthly at the centre's office to share their experiences of how the technologies were working on their farms.

'We learned about conservation farming—natural vegetative strips, minimum tillage and agroforestry. I found that agroforestry was a good fit for the undulating area of my farm. Rainfall in upper Claveria is 2,500–3,000 mm. But down below, it's dry.'

After 3 years, the group decided to form a farmer organisation.

'We looked for a name to call ourselves,' says Marcelino. 'I liked the word "landcare" because we all understood "land" and "care". I sold it to the group and after a lengthy deliberation the Claveria Landcare Association was born. I knew nothing about landcare in Australia. It was a complete accident that we had used the same word.'

That was 26 March 1996. Not only was it the birth of landcare in Mindanao, it was also the birth of landcare in the Philippines.

'Now on my farm, the *Imperata* grassland has been replaced by a forest of timber and fruit trees that I have grown. The soil is now fertile and, most significantly, spring water is flowing from my forest and serving my farm and my household. How great! I really treasure this forest in my life. I owe this to landcare!

'If our people will adopt the landcare approach, there is no reason why we can't restore the beautiful lost Garden of Eden from the book of Genesis (Chapter 2:10–16).'

Marcelino Patindol (above) surveys the crops growing on his contoured farm in Claveria. Contour farming is one of the conservation farming technologies he has helped to promote.

Natural vegetative strips and the ‘cow’s-back’ method of ploughing contours

Natural vegetative strips are narrow strips of naturally growing grasses and herbs which are left unploughed along the contours of sloping farmland. The 50-centimetre wide strips are spaced 5–10 metres apart, depending on the slope. Left to grow, they act as buffers, controlling soil erosion and helping to filter pesticides and fertilisers in water run-off. Because the grasses used are naturally growing on the farm, the strips are cheap and easy to establish and maintain, and do not compete with crops.

Initially, farmers used a simple A-frame device that helped to indicate where they should plough the contours.

Farmers in Claveria adapted the A-frame method to their own needs and developed what is known as the 'cow’s-back' method. With this method, to get true contours, the farmer makes sure that the back of the draught animal remains level as it ploughs along the contours. If the animal is headed up the slope, its head is higher than its back; if it is headed down the slope, its rear end is higher than its back.

While natural vegetative strips are good at controlling soil erosion, they reduce potential crop area by 10–20%. Although this means a reduction in total yields and farm income, it does lead to greater sustainability in the long run because farmers are able to remain on their land and produce regular crops. Planting timber trees and fruit crops such as bananas, durians, lanzones and pineapples on the strips can make them more productive.

A farmer demonstrates the 'cow’s-back' method for locating contours.

Changing attitudes and practices, not just technologies

by Agustin ('Jun') Mercado, Jr

In the beginning we were not thinking about landcare. Our challenge as researchers was to help tackle the major soil erosion problem of farmers in Claveria, where we had soil losses of 50–300 tonnes per hectare every year. This erosion was reducing farmers' annual crop yields by 200–500 kilograms per hectare. After 3 years of continuous cropping on sloping land, the farmers had to abandon their fields. They moved to another location, where they had to cut down more forests to sow their crops. Our challenge was to sustain the areas already under cultivation and protect the forests.

Claveria is the upper watershed for 13 coastal municipalities in Misamis Oriental. So, what the farmers do here in Claveria affects all 13 municipalities. Besides soil erosion, there are issues related to soil acidity, soil fertility, land clearing, biodiversity loss, weeds and destruction of marine environments.

First we tried the sloping agricultural land technology (SALT), which uses a double hedgerow of legumes to stop soil erosion. Planting two rows of legumes, such as *Gliricidia sepium* or *Flemingia macrophylla*, along the contours eventually leads to a terracing effect.

We did a lot of work to develop the system for the acid soils typical of Claveria. However, the technology was not being adopted by our farmers. The work was labour intensive, taking 58 days to prepare 1 hectare. It took another 158 days a year to prune and maintain the hedgerows. On top of that, the legume seeds and seedlings were too expensive for our farmers. We also found that the hedgerows were directly competing with crops by taking up water and nutrients from the same layer of the soil profile. SALT was not a suitable technology for our area.

Then one of the local farmers accidentally left a strip of natural grass on their fields, where they had pegged out an area to put in a legume hedgerow system and then abandoned it. At first, we thought they were just being lazy, but when we looked at it carefully we found that leaving a strip of native grass allowed rainfall to filter through the grasses without washing the soil away. Eventually, terraces formed naturally in the areas where there were grass strips.

The best thing about this new technology, which became known as natural vegetative strips, or NVS, was that it was low cost and easy for farmers to adopt. The time needed to maintain NVS is much less than for a legume hedgerow and is related to how far apart the strips are placed. For example, strips spaced 6 metres apart take 30 days a year to maintain—less than one quarter of the time needed to maintain a legume hedgerow.

Jun Mercado grows fruit and timber trees in the natural vegetative strips on his farm in Claveria, Misamis Oriental.

Using NVS, annual soil losses can be reduced to as little as 2–4 tonnes per hectare. When farmers plant trees in the strips, they improve both the productivity and biodiversity of their farms. The more trees there are, the more carbon is stored, helping to reduce greenhouse gases. Less soil erosion means improved water quality downstream and less destruction of marine and coastal environments from sediment run-off.

Landcare is exciting because it touches everyone's life. It is about sharing knowledge —ideas, experiences and technologies. Here in Claveria it has spread so widely that if you are farming or ploughing up and down the slope, someone will tell you: 'What you are doing is wrong; when the rain comes all your soil will be washed away'. That person could be a neighbouring farmer, an extension worker, a parish priest, a *barangay* council member or even a school child.

Landcare's greatest success is that it is changing the attitudes of farmers, policymakers, local government units and landowners about how to use the land and protect the environment. It is not simply about the conservation measures that have been implemented or the number of landcare members. It's about changing land-use attitudes and practices to meet current needs, while conserving the land for future generations.

Landcare spreads beyond Claveria

In 1999, following landcare's early success in Claveria, two internationally funded projects strengthened landcare at the Claveria site and evaluated it at four other sites in the southern Philippines. In line with the partnership ethos of landcare, the two projects collaborated closely throughout the following years.

The Philippines–Australia Landcare Project

The Philippines–Australia Landcare Project—funded by the Australian Centre for International Agricultural Research (ACIAR)—brought together the following organisations:

- the World Agroforestry Centre (then known as the International Centre for Research in Agroforestry)
- the Southeast Asian Regional Center for Graduate Study and Research in Agriculture
- the Queensland Government Department of Primary Industries and Fisheries
- the Queensland Government Department of Natural Resources
- the University of Queensland
- Barung Landcare, a community-based landcare group in Queensland.

The project focused on implementing or expanding the landcare approach at three sites, and evaluating the impacts of landcare on adoption of conservation farming practices and rural extension systems.

The project established three new landcare sites in Mindanao at:

- *Barangay* Ned, Lake Sebu, in the province of South Cotabato
- the municipality of Lantapan in the province of Bukidnon
- the province of Misamis Oriental.

The project appointed specialised extension personnel called 'landcare facilitators' at each of the three sites. The landcare facilitators were backed by technical and extension personnel offering support in conservation farming technology, training and evaluation.

The Philippines–Spain Landcare Project

With funding from the Agencia Española de Cooperación Internacional (Spanish Agency for International Cooperation), the World Agroforestry Centre was able to further expand landcare in Claveria and the neighbouring municipality of Malitbog (Bukidnon), and establish pilot landcare sites on the islands of Bohol and Leyte in the Visayas. The focus of the Visayas program was to evaluate conservation farming systems, such as natural vegetative strips, in a farming environment very different to Claveria—one with highly degraded, shallow, calcareous soils on farms of predominantly rice and coconut farmers.

Farmers and institutions embrace landcare

At each site, the project team focused on getting farmers involved and getting them to adopt soil conservation and agroforestry technologies. Using a collaborative three-way partnership of farmer groups, local government units (LGUs) and technical providers (and other community groups), they gave the farmers the opportunity to drive the process.

By 2004, more than 600 landcare groups had formed, with 30–60% of the farmers at each site adopting soil conservation technologies, affecting 15–25% of their total farm area. This was an increase in farmers' knowledge and skills and a rate of change in farming practices rarely before seen in the Philippines.

There were also positive social and economic impacts from the farmers' improved capacity to pursue potential livelihood improvements such as growing fruit and timber trees and high-value vegetable crops (not just a rice or corn monoculture), and implement collective marketing and purchasing schemes through the landcare projects.

In addition, more than 40 local institutions adopted the landcare concept, with farmers identifying and planning activities and projects rather than the activities and projects being imposed on them. This demonstrated the potential for landcare to improve local governance.

Noel Vock (far left), Project Leader of the Philippines–Australia Landcare Project, discusses landcare with project staff and farmers at Pilar, Bohol.

Research confirms the effectiveness of landcare

In 2004, the Philippines–Australia Landcare Project was expanded, thanks to further funding from ACIAR and new funding from the Australian Agency for International Development (AusAID).

A fourth Mindanao site (in Agusan del Sur) was established, activities at the Bohol site were extended to two new municipalities, and activities at the other three sites were expanded to the provincial level. Catholic Relief Services and the National Crop Protection Center of the University of the Philippines Los Baños joined the project as partners.

In this second phase, the project focused on:

- researching the most suitable institutional or agency structure for taking landcare forward
- identifying the most appropriate ways of helping landcare entities such as landcare groups, municipal landcare associations and farmer trainer groups to be self-sufficient
- increasing the scale and level of uptake of the improved farming systems and diversified livelihoods
- evaluating the impacts of landcare activities.

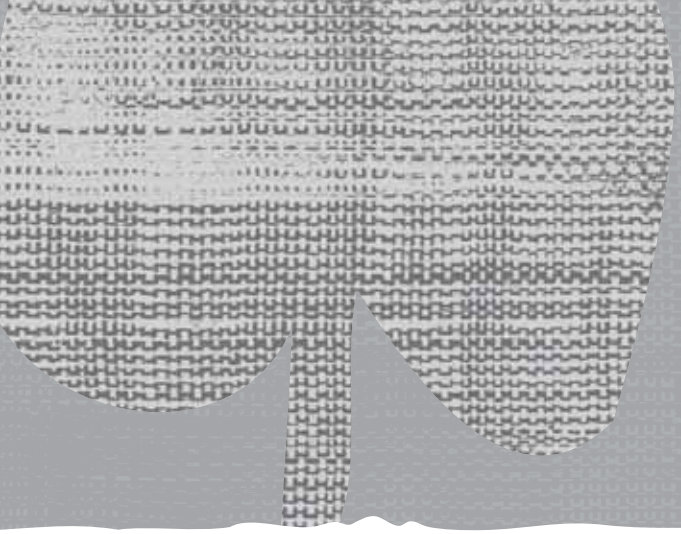
The project confirmed the effectiveness of landcare in reducing the environmental impacts of upland farming systems, while improving the productivity and income potential of the land. It showed that discernible improvements to the sustainability of farms encouraged farmers to change from their primarily subsistence cropping practices, investing in cash crops and perennials. A survey of more than 100 farmers showed that the median cash income of farmers who had adopted landcare farming systems was 60–80% higher than that of non-adopters. In addition, the research showed that landcare made a major contribution to building linkages for poor and often isolated farming communities with external contacts and information sources. More agencies also joined the landcare movement, finding it a useful medium for more effectively delivering their programs.

During this time, landcare continued to evolve from its early focus on stopping soil erosion through the use of conservation farming technologies to focus more broadly on improving farmers' livelihoods. This evolution has occurred because farmers (and others) have seen with their own eyes the benefits that landcare brings in simultaneously tackling livelihood and welfare issues in their local communities.

The Landcare Foundation of the Philippines, Inc.

In 2003, under the Philippines–Spain Landcare Project, the World Agroforestry Centre established the Landcare Foundation of the Philippines, Inc. (LFPI). LFPI's primary purpose was to administer a Small Grants Program to landcare groups in three of the primary landcare sites in northern Mindanao—Claveria, Lantapan and Malitbog—through a special Landcare Trust Fund provided by the Agencia Española de Cooperación Internacional. In 2005, LFPI started to participate in other small landcare projects across its three northern Mindanao sites, while maintaining links with the Philippines–Australia Landcare Project.

Landcare sites in the Philippines (2008)



By 2007, LFPI was running its own projects through robust partnerships with local government and international and national donor agencies. The Philippines–Australia Landcare Project, through its institutional research, had identified LFPI as the most appropriate agency to take on the long-term responsibility of being the lead agency for developing landcare in the Philippines. And so, in 2007, LFPI became an official partner of the Philippines–Australia Landcare Project.

In early 2008, in line with building its capacity to become the lead agency for landcare in the Philippines, LFPI took over management of the Philippines–Australia Landcare Project, including project operations in northern Mindanao, southern Mindanao and the Visayas. This move into 'the driver's seat' represented a major shift in LFPI's relationship with its partners. In particular, the World Agroforestry Centre, the Southeast Asian Regional Center for Graduate Study and Research in Agriculture, and Catholic Relief Services moved from managing the landcare program and staff to providing technical and institutional support to LFPI. With all landcare staff now under one umbrella, the three regional teams can more effectively share information and ideas, and contribute to shared goals.

LFPI appointed a research manager in 2008 to coordinate research across the three sites, undertake specialist case studies and better evaluate the impact of landcare on farmers' livelihoods. Keeping a strong research focus ensures not only that LFPI and its projects can demonstrate progress against donor objectives, but also that landcare itself can be incrementally improved in the way it is delivered and in its impact on farmers.

LFPI continues to cultivate its relationships with donor agencies. In 2008 alone, it has partnered with:

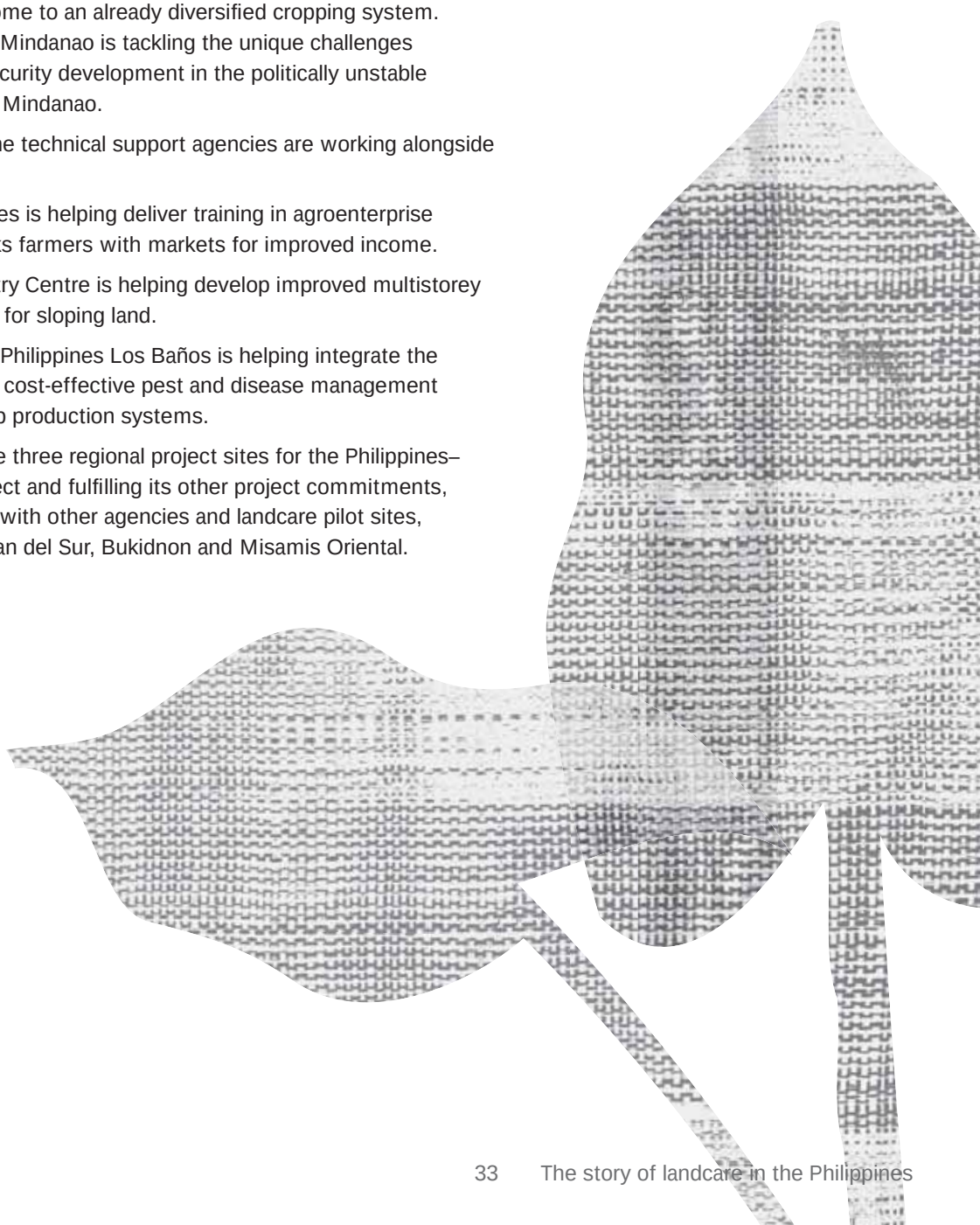
- the United Nations Development Programme's Small Grants Programme to Promote Tropical Forests in community-based forest protection
- the Asian Development Bank-funded InfRES Project on banana production and the dispersal of working animals
- Broederlijk Delen on agroforestry development
- the Philippine Tropical Forest Conservation Foundation on community-based conservation of indigenous trees in forest communities
- the ACIAR Community Agricultural Technology Program in a special agricultural technology extension project.

To improve farmers' livelihoods, LFPI's projects are designed to build on previous work in soil stabilisation, fruit and timber tree agroforestry, and high-value vegetable production. For example, at the Bohol site, farmers are being trained in the production of organic fertilisers and soil ameliorants, and in pest control methods that reduce household costs. In northern Mindanao, the World Agroforestry Centre continues to support the investigation of integrating rubber trees on farms as an alternative and extra source of income to an already diversified cropping system. The project in southern Mindanao is tackling the unique challenges associated with food security development in the politically unstable conflict zone of Muslim Mindanao.

Across all three sites, the technical support agencies are working alongside the landcare teams:

- Catholic Relief Services is helping deliver training in agroenterprise development that links farmers with markets for improved income.
- The World Agroforestry Centre is helping develop improved multistorey agroforestry systems for sloping land.
- The University of the Philippines Los Baños is helping integrate the most appropriate and cost-effective pest and disease management technologies into crop production systems.

As well as managing the three regional project sites for the Philippines–Australia Landcare Project and fulfilling its other project commitments, LFPI continues to liaise with other agencies and landcare pilot sites, including those in Agusan del Sur, Bukidnon and Misamis Oriental.



A landcare dream come true

As of January 2008, LFPI took over responsibility for the strategic planning and support processes of the ACIAR–AusAID Philippines–Australia Landcare Project. This is a dream come true for Maria Aurora Laotoco, or 'Au' as she prefers to be called, the Executive Director of the Foundation since 2005.

Au has long been passionate about the need for a single organisation to bring together landcare projects and other natural resource management activities. Her experience of landcare stretches back to 2000 when, as a landcare facilitator, she worked on the first ACIAR-funded landcare project in the Philippines.

'The biggest challenge I face,' says Au, 'is leading the Foundation's members and staff in developing and transforming the Foundation into an institution that is ready to push and market landcare to a broader level.'

Au faces challenges at a personal level too. 'There are so many new things that I want to learn or read about, and so many good ideas that come to mind that I want to put to action. Juggling the responsibilities at home and work is not easy. My work often requires me to travel for two weeks straight or more. This kind of responsibility needs a very understanding family. But I'm happy that my three children can now mainly manage on their own. And landcare is not simply work, but a life commitment to contribute something in the little way I can to rural development.'

Au sees an increasing number of women involved in landcare in the rural communities and in the municipal agriculture offices of the local government units.

'The increase is perhaps because the women are as involved as the men in the farm activities. They are as concerned as the men about the sustainability of household farm production. And they are interested in new ways of increasing household income. In some cases, it is the women who participate in the landcare meetings. They then share what they've learnt with their husbands so that it can be applied on their farms.'

Maria Aurora 'Au' Laotoco is the Executive Director of the Landcare Foundation of the Philippines, Inc.