Landcare: Scaling Up Soil and Water Conservation Practices in the Philippines

A. Background

Soil erosion is a major concern in the Philippine uplands where poor households farm sloping lands that are ill suited to intensive cultivation [1]. About 60% of the total land area of the Philippines is considered as uplands. Increasing population pressure and unsustainable use of natural resources have led to severe environmental degradation, especially of the upper watersheds. By the early 1990’s, the majority of these watersheds were in a critical condition, and were characterised by the loss of agricultural productivity, deforestation, a poor rural population, downstream sedimentation, flooding and low dry season stream flow [4].

This case study outlines and analyses how in this particular setting, an innovative approach to address the issue of land degradation, which provided simple and cost-effective solutions to soil erosion problems, firstly evolved and then was scaled up – the Landcare approach.

Claveria is an upland municipality with two thirds of its landscape consisting of steep mountains and rolling hills. The average annual rainfall is around 3,200 mm and the soils are well drained with moderate depth. Farmers are concerned with the consequences of excessive soil erosion, since high rainfall causes severe erosion on slopes that have insufficient vegetation cover, where most of the cropping takes place [1].

Sloping agricultural land technology (SALT), such as the establishment of contour hedgerows, has been promoted by government departments in Claveria since the early 1980’s as a solution to the aforementioned problems of sustainable crop production in the uplands. Despite offering considerable benefits, the farmers’ adoption of this technique was not widespread due to the following constraints [4]:

- High labour requirements to establish and maintain the hedgerows
- Limited value-added to the farm income
- Unanticipated problems in soil fertility due to hedgerow competition
- Poor species adaptation and a lack of planting materials
- Insecure land tenure

Research by ICRAF1 into the contour hedgerow system in the early 1990’s found that natural vegetative strips (NVS) were effective in controlling soil erosion and provided a superior, low-cost conservation technology for the uplands. NVS had evolved as a variant of SALT when farmers experimented with the hedgerow concept by placing crop residues along the contour lines and leaving the native weeds to re-vegetate in the unplanted strips, eventually forming stable natural barriers to erosion. The benefits of the NVS system were [1]:

- Soil erosion was reduced by more than 90% and water infiltration was increased during heavy rains.

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1 World Agro-forestry Centre, the former International Centre for Research in Agro-forestry
The labour requirement for establishing and maintaining NVS was substantially reduced, as there was no establishment cost other than to mark out the contours before ploughing. Additionally the labour for maintenance was less than a quarter of that for the conventional hedgerow system.

There was minimal competition with adjacent field crops.

Pesticides, nitrates and soluble phosphorus were filtered from runoff.

Subsequent land preparation and crop management were made easier.

Farmers had a good foundation to develop their farms into various agro-forestry systems and increase productivity.

By 1995 farmers were adopting the NVS technology quite spontaneously. The initial uptake of NVS encouraged ICRAF to examine the phenomenon further, to see how public sector research and extension institutions could develop more effective techniques to diffuse the NVS technology rapidly to a large number of interested farmers. ICRAF, in partnership with the municipal government, initially set up an extension team, comprising a trained farmer, an agricultural technician and an ICRAF staff member.

Shortly afterwards a number of trained farmers agreed to form a municipal-wide group, named the Claveria Landcare Association, which then proceeded to set up community Landcare groups in the villages and sub-villages of Claveria to help promote NVS. The Landcare approach emerged from the initial formation of this association. Landcare is a step-by-step approach to rapidly and inexpensively introduce and scale up agro-forestry practices, namely the NVS technology among upland farmers. It is based on the farmers' innate interest in learning and sharing knowledge about new technologies that earn more money and conserve natural resources. It is centred around farmer self-organisation, farmer-led extension and farmer-to-farmer knowledge sharing, supported by capacity building and training [4]. Landcare uses a triangular approach involving farmers / community (organised in Landcare groups), local government units and technical facilitators. The detailed design of this approach and its step-by-step implementation are presented in a separate technical annex. At its core were the Landcare groups, while ICRAF (or other NGOs) provided technical facilitation and logistical support, the local government units provided policy and financial support.

Landcare quickly developed into an approach that rapidly and inexpensively disseminated conservation farming technologies within Claveria, due to the effective partnership between farmers, local government and ICRAF’s technical facilitators. It resulted in the widespread adoption of NVS and agro-forestry practices, with one third of the total farming population, who were responsible for managing about one quarter of the total cropped area, adopting these practices. Farmers also expanded their repertoire of timber, fruit and indigenous tree species, and established numerous communal and household nurseries [1].

Due to the initial success in Claveria that had brought about an unprecedented increase in adoption of soil conservation and agro-forestry techniques, the Landcare approach was considered to be an institutional innovation. Efforts were undertaken in the late 1990’s to scale up this approach to other areas in the southern and central Philippines, involving some 10,000 farmers and 15 partner institutions [1].

The scaling up targeted several sites with different levels of technical and institutional support being provided by ICRAF and local government units. ICRAF consciously limited and / or progressively reduced its input as the goal was to understand how Landcare could be initiated by local government units with less external support. Additionally sites for scaling up were selected in such a way that different levels of support were

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2 See: TA: Landcare; Institutional Arrangements for Scaling Up [5.3]
represented from local government units. By and large, municipal governments were the main pathways for scaling up, but in some cases non-government organisations provided alternative pathways.

These efforts to scale up the Landcare approach were accompanied by research to evaluate their success and the factors that had determined it, and thereby to investigate the minimum requirements necessary for effective adoption in other areas [1].

B. Lessons Learnt

The success of scaling up the Landcare approach varied significantly between the selected sites. However, the overall level of adoption and the impacts of the approach were impressive. It was indeed possible, albeit to varying degrees, to scale up the Landcare approach in multiple sites with progressively reduced technical and institutional input from ICRAF, and with differing levels of support from local government units.

The general message is that successful scaling up of conservation programmes such as Landcare requires a broader and longer-term commitment than simple technology dissemination. It requires a thorough examination of the nature and relevance of the programme against the prevailing local conditions, and of the capacity of the institution to implement a scaled up programme in multiple sites. Unless the elements for successful scaling up are in place, the wider promotion of successful conservation programmes such as Landcare will not be feasible.

The lessons learnt from scaling up the Landcare approach have been documented in numerous papers ([1], [2], [3], [4]), and we have grouped them as follows: (1.) Overall Adoption and Impacts, (2.) Technical Aspects, (3.) Farmer Institutions, (4.) Supporting Institutions and (5.) Political Environment.

1. Overall Adoption and Impacts

- The most important impact was in the improvement of human and social capital, enabling farmers to adopt soil conservation technologies with foreseeable improvements in natural and financial capital.
- The most tangible benefit of Landcare was the rapid adoption of NVS and agro-forestry practices. Farmers also enjoyed social benefits through improved community relations and leadership.
- A major reason for the success of Landcare was its technical appropriateness and adoptability of the conservation technology introduced.
- The promoted soil conservation technologies were more easily adopted, based on their inherent relative advantage, than was the Landcare process itself.
- However, rapid adoption was also attributed to the triangular partnership of the three parties involved, namely farmers / community (organised in Landcare groups), local government units and technical facilitators (ICRAF or other NGOs).
- In addition, the way training, group formation, facilitation and the information dissemination campaigns were implemented was important for the Landcare approach’s success. The training sessions facilitated technology adoption not only because they were effective in information dissemination, but also because they fostered social bonding and networking among participants as they were less formal and focused on practical, hands-on exercises.
- The Landcare approach worked most effectively at the site where the technologies it promotes had first emerged (Claveria). This is probably due to Claveria’s favourable social and biophysical environment, which had prompted the emergence and
spontaneous adoption of the technology in the first place. Landcare could be only partially scaled up where the conditions of the original site were not fully replicated.

- At sites other than the initial Claveria site, the question of how to achieve a “farmer-led” or “demand-driven” process, when the approach was clearly being introduced from outside, proved to be challenging. In these situations it was necessary to initiate, massive information campaigns on broad environmental issues and surveys of farmers’ interest in conservation farming.

2. Technical Aspects

- The scaling up approach had a strong technical dimension, as the technology that was promoted was indeed highly adoptable.

- The adoptability of NVS as an effective and low-cost soil conservation measure was essential in the scaling up process. Farmers judged the relevance of Landcare according to the adoptability of the NVS system to their situation.

- NVS provided a simple, cost-effective solution to the problem of soil erosion. These technical merits were a major advantage.

- The flexibility offered by NVS to evolve into an agro-forestry system was an advantage in the scaling up process, suggesting that a proven set of flexible technologies is a key element in promoting conservation efforts. Offering a range of options to farmers rather than a specific recommendation is important [3].

3. Farmer Institutions

- Formation of Landcare groups and sub-groups were key elements and decisive in successfully, enabling farmer-led extension.

- The decentralised and non-hierarchical approach embodied in these groups was found to be effective in knowledge dissemination and management.

- The Landcare association, as a higher level organisation, was important in sustaining collective action and strengthening the social capital that resided in individual Landcare groups.

- In cases where trained farmers were not fully organised around shared interests, the collective support for conservation efforts was lacking.

- Landcare was more likely to succeed in areas where farmers were wholly focused on farming and free from competing economic interests and the effects of rapid urbanisation.

4. Supporting Institutions

- The Landcare approach flourished where local government units were supportive of grassroots initiatives and had the desire to work with farmers and other agencies, and also where ICRAF provided a long-term research and extension presence.

- In some cases, there was vague support from local government units due to the fact that they had a different development agenda. Local government support, as one part of the triangular partnership, was therefore present in some cases and absent in others. Hence, although this support was desirable, it was not essential to successful scaling up.

- However, in the absence of consistently strong support by local government units, it appeared to be vital to have compensatory institutional backing from a committed, technically competent non-government organisation. Reducing ICRAF’s direct involvement and support in such situations clearly undermined the scaling up process’s likelihood of success.
Conversely, the integration of *Landcare* activities in the municipal extension system, with significantly less institutional support from ICRAF, required more support from the local government units.

ICRAF did play an important catalytic role in technology development, dissemination and the provision of effective training programmes.

5. Political Environment

The dynamics of local politics could positively or adversely affect programme implementation. The political dimension of local governance was thus an important consideration in scaling up.

*Landcare* had better prospects where local politics were stable, and where *Landcare* leaders had an established relationship with officials of local government units, allowing for the triangular partnership to prosper.

Leadership transition, organisational changes and unresolved political issues reduced the support from local government units.

Where commitment from political leaders was lacking, agricultural extension teams as a whole were reluctant to get involved.

C. Relevance for the Lower Mekong Basin

The socio-economic and biophysical conditions of the Philippines are similar to those found in some parts of the Lower Mekong Basin. There are further similarities related to natural resources management issues in watersheds. The *Landcare* approach that evolved in the Philippines thus provides valuable lessons learnt, which could help to promote and facilitate the scaling up of soil and water conservation practices in the Lower Mekong Basin.

D. Categorisation of the Case Study

*Scale:* References to the total size of the area covered by the *Landcare* approach could not be readily identified. The approach was confined to administrative boundaries, namely municipalities and villages. These are comparable in scale to the watershed and catchment levels.

*Impact:* In the *social* dimension, the documented and confirmed impacts include the successful development and scaling up of a technology, along with the improvement of human and social capital, enabling farmers to adopt soil conservation technologies with foreseeable improvements in natural and financial capital [1]. In the environmental dimension, the positive impacts that were mentioned included reduced soil erosion, improved water infiltration and a better use of nutrients at the plot level [1]. Potentially there are believed to be substantial benefits related to productivity and the environment through the increased adoption of conservation technologies, even in the absence of quantitative estimates (speculative) [2]. Documented evidence on the impact of the Landcare approach at the level of catchments or watersheds, as for instance on water resources, could not be readily identified.

References and Sources for Further Reading


http://www.worldagroforestry.org/Sea/Publications/files/bookchapter/BC0228-06.PDF

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