

# **Policy Reform and Extension of Technical Innovations as Alternatives to Slash-and-Burn in Southeast Asia**

## **Progress Report No 2**

**November 1999-April 2000**

The project was initiated at the end of July 1999. This report covers accomplishments from November 1999 to April 2000.

### **Component 1. Policy development for community-based natural resource management.**

A draft review of relevant socio-economic literature on community forestry was completed in December. Final revisions are currently being completed. A policy and institutional analysis of Indonesia's community forestry program (phase 1) was also completed. Case studies on community efforts to gain tenure security in West Kalimantan, Lampung, and East Kalimantan continued during this reporting period. Fieldwork in East and West Kalimantan has been slow (but continues) due to security problems in each province. The research in Lampung continues to be the most advanced with analysis on the Krui case completed and data collection in the Sumber Jaya area nearly complete.

Analysis of policy options and institutional innovations for gaining secure tenure continued to center on three options for local agroforestry farmers to pursue:

- (1). Application for stewardship contracts within the state forest zone (35 years) through the government community forestry program (HKM),
- (2) The recognition of traditional rights (Adat) within and outside of the state forest zone and
- (3). Reassessment of the forest boundaries: Setting procedures to secure agroforestry lands outside of the state forest zone by redefining state forest boundaries (this work included research on how to define and gazette enclaves of private lands within the state forest zone).

Research on the government community forestry program during this period had intended to focus on the development and implementation of the HKM program's implementation guidelines (Juknis/Juklak). This work has not yet been done. While preliminary guidelines were drafted by Department of Forestry staff, these were shelved during the period of political transition and because of the Department of Forestry reorganization. This work is expected to recommence during the coming few months.

Research continued on appropriate mechanisms for recognizing Adat rights over ancestral lands and forests inside the state forest zone. A study on legal precedents and state efforts to recognize Adat rights was completed and submitted to the Department of Forestry at their request. ICRAF research results were also incorporated into a draft

Department of Forestry policy on the recognition of Adat in the state forest zone.

Research on forest boundary-setting procedures continued during this period but progress was slow due to internal Department of Forestry reorganizing efforts. ICRAF research results contributed to the creation of a new draft policy on participatory boundary setting procedures. ICRAF continues to be part of a Department team developing this policy.

Work detailed under this Component also received support from a regional technical assistance grant from the Asian Development Bank..

## **Component 2. Timber marketing and trade policy**

The existing regulations, taxes, and other negative incentives on trade in farmer-grown wood tend to encourage farmers' practices to burn large amounts of wood during slash-and-burn land clearing. One major example of this is the burning of huge amounts of rubber wood when old rubber agroforests are replanted. We continue to work with the ministries toward enactment and implementation of the draft proposal that ICRAF developed to remove export taxes on 30 species of trees, including rubber, that farmers grow on their farms. These are all species that would not be confused as natural forest species, and thus could be marketed without fear that they were obtained from illegal logging activities.

If farmers had greater financial incentives for marketing farm-grown wood, including rubber wood, there would be reduced fuel loads in areas that were being replanted. This would reduce the amount of smoke produced, as well as the amount of ash that fertilizes the field. We have now completed detailed analysis of the impacts of slash-and-burn fires on soil properties (in work done in cooperation with Ohio State University). The results have shown that reducing the fuel load may actually improve the subsequent soil fertility. This is shown to be the case on soils where P supply is the prime limiting factor, rather than pH and ash constituents.

In a follow up analysis we confirmed that removal of large fractions of the wood before the burn will probably reduce the amount of smoke (small sized particulate carbon), methane (a greenhouse gas) and carbon-monoxide (directly toxic for human health). We thus expect a clear win-win situation where both the farmers and the down-wind stakeholders will benefit from a removal of the current policy-based disincentives to sale of agroforestry wood. The farmers will benefit through increased income from the sale of their farm-grown wood, and from the increased soil fertility effects of having a less-intensive burn. The down-wind stakeholders will benefit from less smoke. This work further strengthens the earlier policy analysis and policy change recommendations that have been made earlier to the ministries. We are still hoping for decisive action on the recommended regulatory changes.

## **Component 3. Extension innovations to accelerate impact of alternatives to slash-and-burn**

Broaden and diversity the range of tree species, provenances and management options for smallholders

Timber production is increasingly becoming a promising economic activity for smallholders in the uplands of Southeast Asia. This is a recent phenomenon, but one that holds great promise for poverty alleviation while increasing environmental protection. In **Indonesia**, smallholders in Lampung Province in southern Sumatra are attempting to be early innovators in this enterprise. However, their early attempts to produce timber often resulted in disappointment because they predominantly used *Paraserianthes falcataria* (sengon), a species inappropriate for their agroecosystem. They had been familiar with the species in Java, where it has performed well.

ICRAF hypothesizes that in future the smallholder will be a major force in forestry in Southeast Asia. We are investigating the ways in which the public sector can best support and enhance the development of smallholder agroforestry and farm forestry for timber production. The peneplains area of Lampung Province is a major target area for our work because farmers there are pioneers in this endeavor in the Indonesian case. One of our major objectives was to assist farmers to identify well-adapted and marketable species to build momentum toward a profitable and sustainable smallholder farm forestry industry. Thus, our first priority was to gain an understanding of species performance on the sandy, drought-prone soils of the peneplains, and rapidly try to broaden the base of profitable species. Initially, we established species trials with seven smallholder farmers in North Lampung. The trial design was uniform over all sites: 5 species were established in blocks of 25 trees at 2x4 meter spacing, with each species replicated 2-3 times. The total area of the trials, across all seven farms, is approximately 2 hectares. Species involved in the trial include *Alstonia scholaris* (pule), *Paraserianthes falcataria* (sengon), *Peronema canescens* (sungkai), *Swietenia mahagoni* (mahoni), and *Tectona grandis* (jati). *Acacia mangium* (mangium) was included in one trial. Sengon, the only species widely planted in the area previous to the trial, served as an experimental control. Analysis of first year results indicate:

Survival and growth for all species benefited from land preparation, weed control, and fertilization operations conducted by farmers to improve production of agricultural crops.

Choice of intercrop significantly effected tree growth. Trees planted under established cassava demonstrated 35-40% slower growth than trees planted with short stature crops or short rotation crops (chili, maize, and legumes). The effect of planting tree simultaneous with cassava remains to be evaluated.

- Tree growth fluctuated by species and farm, but relative growth remains consistent between species under the various conditions.
- Ranked by height sengon was the fastest growing on all sites; pule and mahoni were the second and third fastest on most sites; jati and sungkai were alternated as the fourth and fifth fastest growing species on most sites.
- Ranking by height growth corresponds to the general rotation age expected for these species: sengon is a short rotation species (7-10 years); pule is a medium rotation timber crop (15-20 years); and mahoni, sungkai and jati are long rotation timber crops (a minimum of 20 years).
- While sengon demonstrated the fastest growth, its health and quality are not the best. Additionally, its timber has a low market value.
- Pule, mahoni, sungkai, and jati - not widely planted previously on smallscale farms - hold greater potential for smallholder farmers interested in diversifying their farming activities and incomes streams.
- Mangium may also hold promise for smallholders, but more information concerning its performance under smallholder conditions and marketability is

required.

At the end of 1999, a workshop was convened with the farmers to jointly evaluate the preliminary trial results and to make plans for the activities in the next phase. A second set of trials was designed in collaboration with interested smallholders. These trials took into account the land, intercropping and economic restrictions of each farm family. Twelve trials covering 7 hectares were established with 10 species and provenances, including those used in the previous trial plus a eucalyptus hybrid. Spacing, intercropping and other management options vary by trail according to the objectives of each smallholder. The various trials focus on the following treatments: spacing, fertilization rate, thinning, species mix, companion crop, source and quality of germplasm, and provenance. Planting was delayed until March 2000 due to the late arrival of local rains. Initial data will be collected soon.

In the **Philippines**, an experiment on the evaluation of popular timber tree species as contour hedgerows in sloping acidic upland soils was initiated. This trial is based on the observation that the majority of farmers in Northern Mindanao, who establish soil-conserving natural vegetative strips (NVS) along the contour on cultivated slopes, later plant timber trees along the buffer strips to diversify the farming system and enhance its profitability. The objectives of this on-farm trial are: (i) to evaluate the performance of *Gmelina arborea*, *Acacia mangium*, *Eucalyptus deglupta* and *Swietenia macrophylla* as contour hedgerow species in acidic upland soils at three elevations (350, 600 and 950 m above sealevel); (ii) to assess the effects of nitrogen-fixing trees within the hedgerows, on the performance of interplanted non-N fixing trees of high timber value, (iii) to quantify the above- and below-ground interactions between the trees and associated field crops, and (iv) to identify appropriate tree pruning and thinning practices for smallholders. Data collection has now been initiated. Preliminary results after out-planting of the seedlings on farmers' fields are:

*Eucalyptus deglupta* showed best growth performance at the middle and higher elevations, while *Acacia mangium* performed best at the lower elevation. Across all sites, the growth rate of *Swietenia macrophylla* was slowest.

Interplanting of timber trees with N-fixing trees (*A. mangium*) has a positive effect on the growth performance of the non-N fixing tree species, when inherent soil fertility as well as the rate of applied nutrients is low (typical small-holder farming conditions in Northern Mindanao).

The young trees did not have a significant effect on the performance of the associated field crop. However, light competition is expected to reduce upland rice yield significantly during the first crop in 2000. The data is currently being analyzed.

### Germplasm quality and pathways

Trials have been established in both the Philippines and Indonesia to identify management options for farmers interested in developing farm-scale seed orchards. In all trials *Gliricidia sepium* was used as the species ideotype because it is an important farm forestry species in Southeast Asia, it responds well to management, produces seed within a few years, and there is a high demand for its seed at the local and international level. Management options investigated include: planting material, spacing, lopping practice and fertilization.

A trial comparing establishment by cutting or seedling indicates that seedlings achieve higher survival. Seedling survival was 100% under drought conditions, while cutting survival was only 54%. Under normal precipitation conditions survival of seedlings and cuttings were 100% and 15-20% respectively. Seedlings are better able to retain leaves in the dry season because of a balanced root/shoot ratio. Cuttings are more sensitive to moisture stress and wind-throw because of their under-developed root systems. Cuttings are large at establishment and develop branches and leaves quicker than seedlings. However, incremental height and diameter growth for seedlings and cuttings is approximately equal. Preliminary observations indicate there is no significant difference in seed production between trees originating from cuttings or seedlings. Weed control is required until seedlings achieve co-dominance with the weeds. Weed control is less important with establishment by cuttings.

Spacing studies indicate that narrow spacing (0.1x5 meters) limits seed production on a per tree basis because tree and crown size are restricted by space. However, during the first 4 years after establishment narrow spacing produces more seed per area than wider spacing (0.5x5, 2x2 or 1x5 meters). This is only a short-term advantage, because as wider-spaced trees gain size with age they will produce larger quantities of seed. The suitability of each spacing regime depends on farmer management objectives. Lopping at 1-meter height decreased seed production by roughly 50% for all four spacing regimes. Farmers prefer lopping management because it produced multiple products (fodder, green manure, fuel, and poles) for home-use and local sale. They are not interested in managing solely for seed production unless a firm seed market with a strong price develops. Farmers prefer 0.5x5 meter spacing for *Gliricidia* interpolated with food crops (maize, cassava or soybeans). Their second preference is 2x2 or 1x5 meters spacing in grass pastures. These spacing are considered less suitable for food crop production, but do produce larger quantities of *Gliricidia* products. Farmers generally do not like the 0.1x1 meter spacing for *Gliricidia*.

The application of 250 grams of solophos improved *Gliricidia* seed production by 200% over the no fertilizer treatment. Fertilizer application, based on soil analysis, appear to be reasonable farmer management options for increasing seed production of *Gliricidia*. It is interesting to note that trees that did not receive fertilizer applications but were located on the border of the orchard average seed production levels equal to trees that received fertilizer applications. This indicates that in terms of seed production, fertilizer application can be imitated by decreasing competition with neighboring trees and increase crown size with more exposure to sunlight. Economic analysis of fertilizer application remains to be conducted.

Publications on improved local nursery management and propagation methods, based on the findings at the Lantapan site, are currently being prepared. More detailed information will be available in the next progress report after completion of these publications.

### **Building and applying a database for models of tree-soil-crop interactions**

We initiated efforts to use the WaNuLCAS model of water, nutrient and light capture in agroforestry systems to provide practical guidance for the situation of farmers planting a range of trees into fields cropped with cassava or other food crops. The

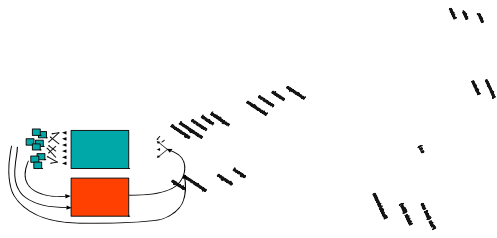
objective is to develop a "library" of tested parameterizations for a range of trees. This will complement existing procedures for applying the model to a wide range of crops and soils. Most of the parameters needed can probably be derived from direct observation of any tree (canopy shape, leaf properties, branch architecture). A number of others depend on local ecological knowledge (growth rate, response to drought, phenology). The procedure is currently being tested in the field.

### **Innovative program in conservation farming for Indonesia**

We communicated the idea of conducting research to re-invent the Indonesian national greening and reforestation program (as mentioned in the last report) to our colleagues in the Ministry of Forestry and other agencies. A seminar was convened in August at ICRAF, Bogor, **Indonesia**. In September we discussed the plan with colleagues at the Watershed Management Technology Center in Solo, Central Java. Subsequently, we have engaged in regular monthly meetings on implementation of the concept with the Directorate General of Land Rehabilitation and Social Forestry, in the Ministry of Forestry and Estate Crops. In each meeting and seminar, the responses from Indonesian government officials have been very positive. ICRAF has been urged to expand our work from our key watershed in Sumberjaya, Lampung Province to Solo, Central Java and to Garut, West Java. To respond to these requests, we have been developing a research network with the national institutions. We will be prepared to manage such a network after the initial stage of development of a Landcare movement in Sumberjaya is completed late this year.

The Indonesia government officials admitted that, in the past, the national-scale soil conservation program has put too much emphasis on covering very large target areas. And thus, quality has been sacrificed for large-scale coverage. The past programs have been supply (government) driven. Blue-print recommendations have been enforced, rather than custom-fitting the recommendations to local realities through interaction with the farmers. We are optimistic that with the new regime, the Indonesian government will now be ready to adopt our proposed program employing a new, participatory paradigm, with community and local institutional empowerment.

The approach introduced by ICRAF for locally-led natural resource management is known as the "Negotiation Support Model" (see Figure 1). Prospective conservation farming technologies will undergo evaluation and negotiation processes among the stakeholders, with strong involvement of the smallholder community. Researchers play a major role in facilitating the process through building a science-based suite of practices with thorough knowledge of their effects on farm productivity and watershed services, with continuous refinement of NRM/agroforestry technology. We have received enthusiastic support from our partners in the provincial and local governments, and the farm communities, to apply and develop this approach as a national model in the Sumberjaya watershed in Lampung.



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**Figure 1: Negotiation Support Model for improved natural resource management (NRM)**

The Sumberjaya watershed is part of the large coffee-growing belt that covers much of the foothills on the eastern flanks of the Barisan National Park. During the past several decades, large areas of protected forest have been encroached smallholders and have been transformed into coffee gardens. The Ministry of Forestry has implemented intermittent programs to try to force farmers off the land by destroying the gardens, or has tried to plant timber trees in the gardens to convert them into forests. These programs were not successful. During recent years the opening of coffee gardens has actually further accelerated.

Our objective is to develop a process by which the Ministry of Forestry can meet its objectives to protect the watershed services, while at the same time enabling established settlers to co-exist by managing their coffee systems in ways that will ensure adequate environmental protection. During the past quarter we conducted surveys in the watershed and identified a suite of prospective conservation farming practices that may contain runoff and soil erosion to within tolerable levels, while maintaining or even enhancing coffee yields. We are currently employed the Revised Universal Soil Loss Equation (RUSLE) to estimate soil erosion and runoff from a wide range of combinations of practices suited to the diversity of soils and slopes and farming systems. During the coming quarter we will be starting field tests of these combinations of practices with farmers. Meanwhile, we have identified incipient farmer-led organizations that may be developed into vibrant Landcare organizations to provide a means by which the new ideas and practices can be shared throughout large numbers of households, as has so successfully occurred in the Philippines (see below). We foresee these organizations working with the authorities to negotiate mutually agreeable management systems for coffee gardens that will meet the needs of both the farming and outside stakeholder communities. The Ministry of Forestry and the local government units in Lampung are engaging with us in this process. WATALA, a local NGO, is providing important facilitation for this process.

### **Improved community-based natural resource management in the Philippine uplands through Landcare**

The work in the municipalities of Claveria, Malitbog, and Lantapan, in Northern Mindanao, **Philippines** further accelerated, with the rapid further adoption of soil conservation and agroforestry technologies and the formation of community-based Landcare groups during the past several months. More emphasis has now been placed on scaling-up successful technologies, and the Landcare approach, to other neighboring municipalities, as well as to initiating similar activities in the Visayan islands in the central Philippines. Previous experience underlines that the success in improving natural resource management (NRM) in the degraded uplands of Northern Mindanao is a result of: (i) strong conservation technologies (effective, low-cost, simple, and adaptable to the range of farming objectives), (ii) empowered local communities, through ownership of the research & development process and results, and (iii) strong local government unit (LGU) support of the Landcare program.

In the municipality of **Claveria**, all 24 villages became fully covered by the Landcare program in the first quarter of 2000. A total of 134 Landcare groups (mostly at the sub-village or neighborhood level) were now operating by the end of April, with more than 3000 households participating in the program. The sub-village-based Landcare groups are commonly composed of 15-50 farm households each. Knowledge-sharing is more



frequent and effective in these small groups because members live close to each other. Almost all of these Landcare groups have built a their own special meeting place (*purok* house; *purok* = sub-village, hamlet) where they meet formally and informally to discuss various agricultural as well as community-related issues. Each Landcare group has a set of officers from President down to Public Information Officer with a total number of seven officers. These different Landcare groups are federated into the Claveria Landcare Association (CLCA).

The total number of new adopters of low-cost natural vegetative strips (NVS) for soil conservation was 1304 by the end of April, covering a total area of about 1050 ha. ICRAF paid special attention to capacitating and encouraging Landcare groups (especially their leaders) to share knowledge on conservation technologies within the farmer community. The impact of the Landcare program on the adoption of NVS is illustrated in **Figure 2**.

Fifty-five slide showings were conducted, reaching more than 4000 people, raising peoples' awareness of degradation of natural resources in the uplands and the possibilities for their protection / rehabilitation. A "Landcare in Schools" program was initiated, starting with a slide showing for public awareness (21 showings; 1341 participants). The "Landcare in Schools" activities resulted in the formation of more than 20 Student Landcare Chapters.

More than 1500 concerned farmers have joined in one of the 72 cross visits to Claveria organized by ICRAF up through the end of April. Cross-visits emphasized the direct interaction between the participants and Landcare members. Field trainings (1-2 days) were implemented on NVS Establishment (55; 900 participants) and on Fruit and Timber Production and Management (61; 1045 participants). In addition, ICRAF facilitated trainings on Animal Health Care (3; 125 participants), Leadership Skills (5; 181 participants) and Landcare in School (12 trainings on NVS, and nursery establishment and management; 445 participants). Trainings, and other Information, Education and Communication (IEC) support to Landcare, were conducted in response to the needs identified by the communities (farmers, local government technicians, line agencies, NGOs, schools, etc.) participating in the Landcare program.

**Figure 2: Annual adoption of natural vegetative strips in Claveria, Misamis Oriental, Philippines**

Other IEC activities facilitated by ICRAF, with strong participation and support by the village councils and line agencies (such as Department of Health, Department of Agriculture, and others), included the search for the most outstanding (i.e. most active) Landcare chapter ("Search for Model *Purok*"). The main objective of this local competition was to encourage farmers and residents in the sub-villages to participate in the development as well as protection of the natural resources and the environment. The criteria in winning the prizes were as follows: adoption of soil conservation

: **Landcare started:**  
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(particularly NVS); establishment of individual and communal nurseries; construction of sanitary toilets (most households in the villages do not have toilets); solid waste disposal (separation of biodegradable and non-biodegradable); establishment of a meeting place (*purok* house), establishment of a herbal medicine garden and "faith vegetable garden" (Faith = food Always In The Home); and cleanliness and beautification of their village. Awards were given during the yearly town celebration, which created wider public awareness on Landcare in Claveria municipality.

Many farmers use the NVS as a foundation to establish cash perennials on the buffer strips. Hence, there is a great interest among farmers in Northern Mindanao to produce timber and fruit tree seedlings. However, the lack of knowledge on nursery techniques and the in-availability of seed has been a constraint. Through ICRAF's technical assistance, 345 nurseries had been established throughout Claveria by the end of the 1<sup>st</sup> quarter 2000; more than two thirds of these were individual farmer nurseries. The support provided by ICRAF was solely confined to training and technical back-stopping and the provision of seed of some hard-to-acquire tree species. A total of about 200,000 tree seedlings (mostly fruit trees and *Eucalyptus deglupta*, a high-value timber tree species native to Mindanao) were produced in those nurseries. We observed that communities initially established communal nurseries where people learned as a group about nursery techniques and tree propagation practices. But when individuals gained some experiences, they preferred to establish their own nursery on their farm. We found that household nurseries are well-managed and produced better quality seedlings than communal nurseries because farmers feel in control of their time and capital investment and thus are more responsible in making the enterprise successful.

ICRAF supported the productive use of natural vegetative strips in the medium-term through assisting in the distribution of pineapple suckers for out-planting on the strips (total of 50,000 pineapple suckers were distributed, 262 farmer recipients). Each farmer recipient who obtained up to 400 pineapple suckers (through CLCA officials) is required to return two suckers for each sucker received to the CLCA after harvest of the first crop. These new pineapple suckers will be distributed to other Landcare members. This system will ensure that there is a sustained supply of suckers for future distribution. ICRAF initiated the program by supplying the first planting material.

To assist the Claveria Landcare Association to sustain their Landcare program, ICRAF also helped it build institutional linkages to other organizations that support rural development. For example, the Landcare facilitators (employed by ICRAF) assisted in the distribution of working animals provided to Landcare members by another development-oriented NGO. The supply of these animals was also based on a revolving system wherein the first offspring will be given to another Landcare member.

It should be noted that the numbers presented above are cumulative, summarizing the achievements since start of the Landcare program in late 1995. However, the adoption momentum accelerated substantively since July 1999, through the additional funding ICRAF obtained invested from this project. For example, in 1999 alone, ICRAF facilitated the adoption of over 500 new adopters of NVS in Claveria and in Malitbog. This is a clear indication that the Landcare approach is an effective and efficient method of enhancing adoption of conservation farming. The strong dedication of the

Landcare facilitators and Landcare volunteers significantly contributed to this success.

In the neighboring municipality of **Malitbog**, Landcare activities were initiated about 1 ½ years ago. Four villages have been covered so far. The number of Landcare groups is currently 23. About 150 NVS adopters have converted more than 100 ha of degraded sloping farmlands into more productive vegetative buffer strips and agroforestry systems. Ten slide shows have been conducted, attended by more than 800 farmers. The total number of nurseries is 90 (29 communal and 61 individual nurseries). They have produced almost 15,000 seedlings (fruit and timber tree species).

Landcare in the municipality of **Lantapan** in Bukidnon was initiated about a year ago. It has had a significant impact on the adoption of conservation technologies, and improved natural resource management in general. By April 2000, 52 Landcare groups in six villages, with over 800 members, were operating. More than 250 farmers have adopted NVS. The technical back-stopping and IEC support provided by ICRAF, which has facilitated this success, included:

- 42 slide shows conducted, with over 2700 participants
- 4 cross-visits, with 270 participants
- 27 hands-on trainings on NVS establishment (more than 500 participants)
- 51 hands-on trainings on tree nursery establishment (about 830 participants)

By the end of the 1<sup>st</sup> quarter 2000 a total of 63 communal and individual household nurseries had been set up. They have produced more than 40000 timber and fruit tree seedlings.

The development and implementation of the Landcare program in Lantapan involved a number of steps and activities as illustrated in **Figure 3**. The process, which has also been followed in Claveria and Malitbog, is simple and iterative, and has proved very effective.

### **Scaling up and scaling out the Landcare program**

Strengthening of the Landcare program at the provincial level in the provinces of Bukidnon and Misamis Oriental continued during the first quarter of 2000. Through facilitation by ICRAF staff, with strong endorsement by the Governor (previously the Mayor of Claveria), a **Provincial Landcare Project Advisory Group** was set up in Misamis Oriental. This is composed of all stakeholders at the provincial level, i.e. representatives from the government, NGOs (including ICRAF) and farmer organizations. This institutional set-up, along with regular visits of the Mayors, municipal council members, and upland village officials, has resulted in a requests for training and cross-visits from most of the municipalities in Misamis Oriental and Bukidnon.

ICRAF's Landcare initiatives in the Philippines were shared at numerous meetings, workshops and conferences at regional, national and international level. A number of articles for media release were prepared. Considerable interest has been stirred among other research and development organizations in the Philippines and Southeast Asia to implement a similar approach in their projects. A high-light in the international exchange of experiences was the visit of a group of 20 Landcare facilitators, implementers, and government and NGO representatives from the Philippines to Landcare projects in **Australia**. (A small portion of the costs of this exchange were

obtained from the investment of this project.) A paper on the Landcare experience in the Philippines was presented during the First International Landcare Conference in Melbourne in March, 2000, following the field tour. ICRAF also participated in the CGIAR-NGO Committee's International Workshop on "Going to Scale: Bringing More Benefits to More People More Quickly", in April (in the Philippines), at which the success and insights from of the Landcare experience was a workshop highlight.

**Preparatory Stage**

- Networking & initial consultation with
- Preparation of IEC materials

- . Cross-site visits
- . Group training

**IEC Work**

**Hands-on Training  
Nursery Mgt and N  
Establishment**

- . Direct assistance to individual farmers

- . Sub-village levels
- . Village levels

**Organization of  
Landcare Chapt**

- . Leadership & team building
- . Communications, etc.
- . Organizational

**Strengthening of  
Landcare Chapt**

**Federation of Land  
Municipa**

**Figure 3: Schematic diagram of the development of the Landcare initiative in Lantapan, Bukidnon, Philippines**

A **training needs assessment** for all sites is currently being conducted to identify not only the needs for [capacitating] farmers (i.e. providing technical and leadership training), but also the capabilities of facilitators in ICRAF and its collaborating institutions. The ICRAF team is also working vigorously on the development of a **participatory monitoring and evaluation framework** that will provide the means to concurrently and more systematically evaluate the impact of ICRAF's research and development activities in Mindanao and the Visayas.

Enhancing the capabilities of farmers to conduct and share their own informal research activities more systematically has also become a focus of ICRAF's support in empowering local communities. Landcare groups (/chapters) provide the entry point to encourage farmers to form research committees (**Farmers' Research Committees**), following the example of the work conducted by CIAT in Columbia. Two post graduate studies are currently conducted to assess the social side of ICRAF's interventions in Claveria, focussing specifically on processes of technology adoption and institution-building, and social capital and transformative learning (adult education).

Scaling up of the conservation farming and Landcare institutional innovations work to the central Philippines (**Visayas** region) was initiated at the beginning of the year 2000. We have begun collaborating with the existing projects related to upland conservation farming in the Visayas. Groups of community organizers / facilitators from those projects, and groups of interested farmer-leaders have joined cross-visits and trainings in Claveria and Lantapan.

The initial partners in this work are the Community-Based Natural Resource Management Project (CBRMP), operating across several regions nation-wide, the Bohol Alliance of NGOs (BANGON) and the Visayas State College of Agriculture, which works with several LGU-initiated natural resource management projects throughout Leyte Province, and the Conservation Farming in the Tropical Uplands (CFTU) network. This work will provide insights into the potentials for the wider extrapolation of a variety of low-cost conservation technologies and group-strengthening approaches, with minimal backstopping by ICRAF.

A Landcare internship program is currently being set up. It will focus on capacitating the technical staff of existing institutions (both governmental and non-governmental) by providing an in-depth understanding of low-cost conservation and agroforestry technologies, and the Landcare approach to upland development.