

# LOCALISING R&D IN BUKIDNON, PHILIPPINES: EXPERIENCES OF THE WORLD AGROFORESTRY CENTRE WITH LANDCARE<sup>1</sup>

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## INTRODUCTION

The World Agroforestry Center (ICRAF) has been part of the multi-sector effort to promote agroforestry in the Philippines, especially among upland swidden agriculturists and upland farmers. Upland farming communities represent the poorest of the poor in the rural sector and, lacking in voice, they are largely marginalized from the mainstreams of society. These conditions exist in the municipality of Lantapan in the mountainous province of Bukidnon, one of the three ICRAF research sites in the Philippines.

The upland ecosystem of Lantapan represents similar upland situations in the Philippines and large parts of Southeast Asia. An old growth forest remains in the uppermost slopes while the rest of the landscape is a “mosaic” of Imperata-dominated grassland occasioned by intensive to extensive upland agriculture by both indigenous communities and migrant farmers.

The forest cover of Lantapan is part of the Mt. Kitanglad Range Natural Park known for its rich biodiversity. It forms part of the headwater of the upper Manupali River, which supports a major irrigation system and feeds into a large hydropower facility that services major parts of the Mindanao Island.

ICRAF's presence in Lantapan started with its active involvement in USAID's Sustainable Agriculture and Natural Resources Management Collaborative Research Support Program (SANREM-CRSP) in 1992. ICRAF played major role in R&D effort to better understand the dynamics of the upland systems in the Philippines, represented by Lantapan, as it provided leadership in the participatory development of improved agroforestry systems.

ICRAF saw the vast potentials of Lantapan for agroforestry-based R&D and established its Lantapan Research Site in 1994, its second research site in the country. In 1999, ICRAF scaled up a localised R&D strategy through Landcare.

This paper describes the experiences and observations of the authors in their involvement in landcare in Lantapan and other municipalities.

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## **Beginning of Landcare in the Philippines**

Landcare is an organised, community-based and multi-sector approach to a rapid and inexpensive adoption of conservation farming and agroforestry practices among upland farmers. In the Philippines, it began in 1996 at the sloping agricultural municipality of Claveria, Misamis Oriental. With the support of ICRAF, 25 farmers organised themselves in order to provide farmer-led mechanisms to solve pressing problems on soil and water conservation.

Landcare has significantly moved and organised communities towards conservation farming practices such as contour farming, natural vegetative filter strips (NVS), enriched NVS and agroforestry. As its membership grew from 25 to over 3000, Landcare formalised and strengthened partnerships among the local government, people's organisations, and R&D agencies in Claveria.

## **Scaling-up**

ICRAF-Lantapan facilitated the spread of landcare from Claveria to Lantapan and other parts of Bukidnon in 1999, through the projects "Enhancing Farmer Adoption of Simple Conservation Practices: Landcare in the Philippines and Australia" and "Enhancing Farmer Adoption of Conservation Farming and Agroforestry Practices Through Farmer-Driven Knowledge-Sharing Institutions in the Philippines," funded by Australian Centre for International Agricultural Research (ACIAR) and Spanish Agency for International Cooperation (AECI), respectively.

Scaling-up started in Lantapan then extended to the municipality of Manolo Fortich and to the nearby city of Malaybalay, both in Bukidnon province.

## **Project objectives**

Landcare implores on voluntary and participatory community-based mechanism towards environment and agricultural sustainability. Its impact is measured in terms of biophysical (adoption of technologies and their effects on the landscape) and social (social capital formation among farmers to plan and initiate activities using indigenous knowledge and skills) aspects. Landcare as R&D intervention aims to:

1. Facilitate the formation of Landcare groups;
2. Through Landcare groups, disseminate appropriate and practicable knowledge and practices on agroforestry to improve food and nutritional security
3. Develop marketing strategies for agroforestry farm products;
4. Mainstream landcare into the realm of local governance;
5. Evaluate the relevance of the landcare approach as an extension model to link communities, government and technologists;
6. Evaluate the impact of landcare approach on the adoption of practices that reduce resource degradation; the predicted impact of the improved conservation practices on alleviating resource degradation; and

7. Empower communities to lead farmer research and knowledge sharing, livelihood and environment protection activities

### **Expected outcomes & outputs targeted**

As an R&D activity, landcare is expected to yield the following outcomes and outputs:

1. Organised Landcare groups at the sub-village, village and municipal levels
2. Widespread dissemination and adoption of soil and water conservation practices, agroforestry or integrated farming systems
3. Local Natural Resource Management Development Plan (NRMDP) and enacted policies and legislations in support to Landcare
4. Mainstreaming landcare approach in the extension services of the Municipal/City Agriculture Office.
5. Market link for agroforestry farm products;
6. Farmer conducting research and leading knowledge sharing, livelihood and environment protection activities

### **Key Players and Partners**

Landcare is a triadic collaboration process among its key players, namely: Landcare groups (farmers, women, students, professionals, business sector, civic groups, etc.), technical facilitators (ICRAF, government instrumentalities, University researchers, NGOs, etc.), and Local Government Units (municipal and provincial).

1. Landcare groups

These are concerned citizens who organized themselves and commit to learn and share their skills, experiences and resources with other individuals and groups. They form workgroups that promote and implement sustainable agricultural technologies and influence government's decisions on land use and natural resource management.

2. Local governments

The Local Government Units (LGUs) consist of local executives and legislators who sponsor and recommend mainstreaming of appropriate programs for soil and water conservation, agroforestry, and watershed protection, from the hamlet to the provincial levels. They make decisions on land use and resource management, enact supportive laws and policies and allocate financial support for natural resource conservation activities.

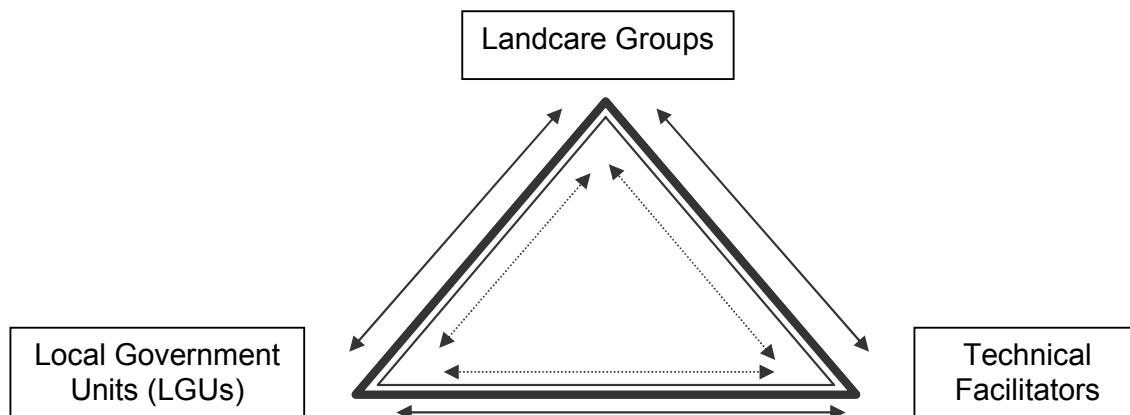
Local governments also provide support to capacity building of Landcare organisations, facilitators and agricultural technicians.

### 3. Technical facilitators

These are research and development agencies that develop and/or disseminate basket of appropriate technologies on soil and water conservation, tree nursery and agroforestry. ICRAF leads on-site technology testing and dissemination through various information, education and communication (IEC) channels. It facilitates awareness building and community organising and networking for landcare.

### Landcare Groups:

1. Encourage communities to organise for landcare;
2. Participate in community diagnosis and plan local actions to address soil and resource degradation problems;
3. Promote knowledge sharing in the organisation, as well as learn from other farmers;
4. Participate in community action to conserve and restore soil fertility by controlling soil erosion and using practical, environment-friendly technology for sustained farm productivity;
5. Commit to promote agroforestry and explore marketing strategies for its products; and
6. Sustain and widen partnerships for Landcare



#### The LGU provides:

1. Policy support to the institutionalisation of conservation farming and agroforestry through passage of local ordinances that facilitate adoption, and ensure sustainable practice;
2. Sound decisions on land use and natural resource management;
3. Financial support to landcare and landcare-related endeavors; and
4. Recognition, incentives and rewards

#### Technical Facilitators:

1. Develop and disseminate appropriate technology;
2. Create awareness among communities through appropriate information, education and communication channels;
3. Facilitate formation and strengthening of landcare groups;
4. Facilitate knowledge sharing among members;
5. Facilitate partnership building and networking for landcare groups;
6. Encourage scaling up of landcare to other areas;
7. Support organisational capacity building.

*Figure 1. The key players and their roles in Landcare.*

## Strategies

Localising R&D through Landcare builds on appropriate technology, institution building, and partnership building. Distilling our experiences in implementing Landcare in Northern Mindanao is in the context of these three cornerstones.

### 1. Appropriate technology options

These are farmer- friendly technologies in soil and water conservation, seed and nursery management and agroforestry, suited to the user's capacity, bio-physical, socio-economic, and cultural environments.

ICRAF's research is conceived and implemented as an integrated natural resources management approach. ICRAF- managed studies are set up on farms, and the Centre encourages farmer innovations and participation in technology development, trials, and dissemination through Farmer Research Committees (FRCs) and Farmers Training Groups (FTGs) created within Landcare groups at the *barangay* or village level.

### 2. Institution building

This consists of organizing farmers to develop human and social capital for local capacities for natural resource management (NRM). Landcare approach has tested the effectiveness of smaller groups because of proximity, commonness of problems, and cultural homogeneity. The decision as to the extent of membership the group must consider depends on the members themselves.

In Lantapan, Landcare groups are *sitio* or sub-village- based. Elected and appointed leaders lead the setting of organisational goals and crafting of rules and norms, and planning of group action towards resource conservation, while facilitators from ICRAF and similar agencies facilitate their organisational processes and technical needs.

*Sitio* Landcare groups federated into a *barangay* level Landcare group, then, into a municipal level association called the Lantapan Landcare Association (LLCA). The LLCA gained a legal identity after it was registered with the Securities and Exchange Commission. At this level, Landcare expects to achieve a municipal or wider impact in natural resource conservation.

### 3. Partnership building

This is linking and building partnerships or alliances with different stakeholders and organisations for landcare. Landcare groups' partnership with LGUs, line agencies (DAR, DENR, DA), ICRAF and other research institutions, academe, and NGOs aims to bring about complementation of expertise, sharing of resources and merging of practicable ideas.

## **METHODS (PRINCIPLES AND PROCESSES)**

### **Principles and assumptions that guide action toward achieving target outcomes**

Localising R & D through Landcare has been premised on the following:

1. Local governments, at the appropriate levels with the support of relevant organisations should promote conservation technologies that are low-cost and easily adapted by local people.
2. The key to effective natural resource management is a partnership where organised local people, local government and concerned agencies work together to address common interest and concerns.
3. Multiplier effect of groups surpasses individual approaches to disseminating technology and enticing government support.
4. Effective R&D intervention recognises local knowledge and practices
5. Organised groups can influence local governments' decisions on land use and resource management, laws and policies, and financial support for natural resource conservation activities.
6. Addressing the immediate economic needs of upland farmers enable them to get involved in R&D activities that may yield benefits in the long term. Integrating short term economic interventions and linking groups to livelihood support programs can lead to sustained interest and participation.

### **Successful systems, processes and practices**

1. Site selection

Selecting sites with good potential to bring conservation farming technology to where it is needed most, like in sloping lands where soils are prone to erosion and degradation, adds relevance to landcare as an R&D intervention.

2. Building awareness on the environment

The use of IEC campaign enhances awareness and interest building among clients and partners. Landcare succeeded in motivating farmers and local officials by giving them first hand exposure to successful technologies and organisations through cross visits and participatory training methodologies.

3. Building trust and confidence

Establishing a good working relationship between and among farmer-clients, Technical Facilitators and LGU starts with trust and confidence building. Prior to their

field assignments, Facilitators are oriented on their roles and responsibilities, and the expectations on them. Their facilitation skills are enriched through seminar and training.

#### 4. Creation of local conservation team

Local conservation team composed of articulate farmers (who are experienced in the application of the technology), technicians from the Municipal Agriculture Office (MAO), Department of Environment and Natural Resources (DENR), or other partners, and a technical facilitator, has been effective in reaching the farm households.

#### 5. Organisation of Landcare groups

A Facilitator from the MAO, DENR or partner organisations, like ICRAF, can assist the community in developing a more formal Landcare organisation.

Landcare approach has tested the effectiveness of smaller groups because of proximity, commonness of problems, and cultural homogeneity. The decision as to the extent of membership the group must consider depends on the members themselves.

Generally, communities prefer to organise *sitio* or sub-village level Landcare groups, composed of interested members and households. Elected and appointed leaders lead the setting of organisational goals and crafting of rules and norms, and planning of group action towards resource conservation.

Sub-village Landcare groups may federate into a *barangay* or village level Landcare group. Then, *barangay* Landcare groups may federate into a municipal level Landcare Association, which eventually registers with the appropriate accrediting government institution. At this level, Landcare expects to achieve a municipal or wider impact in natural resource conservation.

At this point, dissemination and implementation of resource conservation practices moves from the small local conservation team to a bigger, formal Landcare organisation, and facilitation, capacity building, and other organisational development support become more crucial.

#### 6. Enticement for local government support

It is necessary for Landcare groups to build partnership with LGUs at all levels, to ensure sustainability. Landcare groups must be able to:

- a) Gain LGU recognition and accreditation as local partners in the areas of NRM, sustainable agriculture and agroforestry
- b) Influence LGU decisions on land use and NRM
- c) Get financial support to organisational capacity building and natural resource conservation undertakings



- d) Draw policy support to the institutionalization of conservation farming and agroforestry through passage of local ordinances that facilitate adoption, and ensure sustainable practice.

#### 7. Linkage for external support

External donor agencies can best support Landcare development by allocating resources for leadership, organisation strengthening and capacity building, farmer research, travels, communication tools, and transportation.

#### 8. Marketing assistance

Landcare organisations are linked to markets for their tree and other farm products. Linking them also to sources of market information helps them in their production decisions. In these ways, they are motivated to sustain their participation in R&D activities and expand their agroforestry initiatives.

#### 9. Monitoring and evaluation

Landcare groups assess their organisational growth and extent of knowledge sharing, and technology dissemination and adoption. They identify emerging information and training needs that must be addressed by appropriate partners so that they can keep track with their organisational goals and objectives.

LGUs assess policies and ordinances in terms of their effectiveness in drawing community response to resource conservation, in keeping with the local natural resource management plan. Moreover, they monitor implementation of the community land use plan and get feedback on emerging issues which may need legislative decisions.

R&D partners like ICRAF, DA, MAO, DENR monitor conservation practices, organisational development, facilitation process and evaluate impact of Landcare on community participation, technology adoption, household income and food security, as well as get feedback on related researchable areas.

Monitoring and evaluation have to be participated in, and the actors in the Landcare triad must discuss results. Effective feedback and interaction mechanism will be very crucial at this stage.

### **Key techniques**

#### 1. Localized IEC

A good IEC program starts with a clear objective and comes at a farmer-friendly time and place. In the Landcare project, we designed the IEC campaign in line with the objectives of building awareness and interest and presenting technology options. IEC events are done where the audience is. For instance, slide showings are done in the community in the evenings when farmers are free from work; or introduction of

landcare to LGUs are done during the regular meetings of the local executives. The radio program aired in local station presents lessons in the local tongue.

Likewise, well-planned cross visits promote farmer-to-farmer interaction that facilitates communication process. Cross visits are done in farms and organisations having conditions and issues similar to the prospective communities.

## 2. Participatory and interactive methodologies

Participatory and interactive methods initiated by Facilitators encourage participants to freely express themselves in meetings and other gatherings and helped build their confidence as leaders and knowledge sharers.

Likewise, farmers participate in the Farmers Field School (FFS) where they learn how to identify and analyse problems, share knowledge and develop teamwork during a season-long engagement.

## 3. Developing and tapping local trainers

Local farmer-trainers are now taking the lead in localised IEC and training of new Landcare groups. They also attend to visiting groups and prospective partners.

## 4. Blending the old with the new

Using local knowledge and practices in disseminating conservation farming and agroforestry technologies has been observed to facilitate adoption. This is especially so when done in a farmer-to-farmer situation.

## 5. Visibility, integration, and commitment of Facilitators

The technical and facilitation abilities of Facilitators add to their credibility in group formation and dissemination of technologies. However, these assets may not have value, and may not be translated into actions if they are not accessible or visible in the community. Integrating themselves into the community and showing commitment to the Landcare project helps build trust and confidence on them.

## **Key performance indicators (KPIs) used to measure performance**

1. Active Landcare organisations
2. Number of farmer-adopters and extent of adoption of conservation farming
3. Adoption of Landcare approach by LGUs in NRM
4. LGU support to landcare
5. Farmers' perceptions on changes on farm outputs and improvements
6. Extent of knowledge sharing among Landcare members and groups

## RESULTS

### Outputs and outcomes achieved

After almost three years of implementation, the Landcare R&D activity implemented by ICRAF-Lantapan has achieved the following outputs and outcomes:

1. Integration Landcare Into the Municipal/City Agriculture Offices as Extension Approach Linking Communities and LGUs in NRM and agriculture.

In the municipality of Manolo Fortich, partnership with the LGU was established, resulting to the integration of Landcare in the municipality's NRM Development Plan. In each of the 22 villages, two village Landcare Facilitators were trained and selected from local leaders and designated by the municipal government for the responsibility. In partnership with ICRAF and private sector, continuing capacity building honed their leadership, facilitation, communication, and technical skills.

Manolo Fortich conducted the first municipal-wide Landcare Forum that brought together professionals, extension agencies, local leaders, farmers, business and media.

In the city of Malaybalay, partnership with the LGU led to the integration of Landcare in the programme of the Office of the City Agriculturist. After undergoing a capacity building programme that was conducted by ICRAF, the Agricultural Technicians of the City were given the responsibility to promote Landcare as part of upland agriculture projects. The City government allocated budget for start up projects, such as tree nurseries, cross visits and training.

The Manolo Fortich and Malaybalay models are still under documentation, monitoring and assessment.

In the other municipalities of Baungon, Libona and Impasugong, the NRM Development Plans are in the process of initial implementation. Like in Lantapan, Manolo Fortich and Malaybalay, landcare shall be an approach to be adopted. In Libona and Impasugong, ICRAF is in partnership with the ADB-funded Bukidnon Integrated Agricultural Development Project (BIADP) for the promotion of landcare. BIADP is assisting groups of irrigators at the village level.

2. Organisation of Landcare Groups

Sixty three sub-village and village Landcare groups have already been organised in Lantapan. They formed the municipal level Lantapan Landcare Association (LLCA), which serves as the contact point and coordinator. Through the efforts and initiatives of its members, the LLCA was able to establish a central office and information center, a central nursery and display center, and a demonstration farm in partnership

with an elementary school. In Manolo Fortich, 17 Landcare groups were already organised.

### 3. Adoption of Conservation Farming and Agroforestry Practices

About 1,000 farmers in Lantapan and Manolo Fortich have already started adopting conservation farming and agroforestry practices ranging from establishment of NVS to planting of timber and fruit trees. Starting from simple NVS, 30 percent have enriched their natural strips with food crops and/or forage grasses, while 15 percent have planted timber and/or fruit trees along the strips or in boundaries.

As of July 2002, 54 communal and 13 household nurseries have been established to provide for the planting needs of Lantapan farmers. All nurseries started with the propagation of timber tree species and some are already propagating fruit trees. A total of 156,000 timber species seedlings from local nurseries have been planted in the landscape of Lantapan alone.

### 4. Establishment of Market Links and Economic Activities

Two big wood processors were identified as potential markets for timber. Presently, these companies are not operating in full capacity due to limited supply of raw materials. Testing of the timber species grown by Landcare groups in Lantapan and Claveria have started and have led to the identification of those that meet the quality requirements of the market.

Arrangements for the training of initial group of Landcare members on coffee production technology are being facilitated by ICRAF. The training shall be conducted by the country's biggest coffee processor, which shall buy the beans produced by the Landcare groups under an agreement.

The Agroforestry Tree Seed Association of Lantapan (ATSAL), which has become the training arm of the LCCA on seed- and nursery-related technologies, has paved the way for market linkages during training and cross visits. ATSAL is an organisation of farmers who have specialized in the collection and marketing of tree seeds using special skills that ensure seed quality. After almost three years of existence, it has reported a total gross sale of US \$ 60,000 from seeds and seedlings of various timber tree species. ATSAL's economic gains have cultivated the interest of its members to engage in agroforestry R&D activities.

One new innovation in Lantapan is the "package" approach to selling timber tree seedlings. The package consists of the seedling and the services in transplanting and field maintenance for three months. Using this business approach, the LLCA is now responding to orders from landowners.

### 5. Institutional Support for Partners

Six training sessions on technologies and institutional development have been provided to partner institutions as part of the capacity building support. Partners were

also given opportunities to attend congresses, seminars and workshops related to Landcare.

## 6. Support and Other Activities

An ACIAR-funded preliminary 6-month M&E is currently being undertaken for the Landcare project in Mindanao Island. The study is expected to determine the early impacts of landcare on the landscape and the lives of people in the project areas.

An on-going study in Lantapan by the Management of Soil Erosion Consortium (MSEC) is in the process of determining the on- and off-site effects of soil erosion from a particular *sitio*. The study also looks into the effects of soil and water conservation practices, such as NVS, as adopted by farmers within the study area where a Landcare group exists.

Through the AECI project component, ICRAF initiated a Trust Fund to aid Landcare groups in their NRM projects. Groups with qualified projects are extended grants of about US \$ 200 each. The Trust Fund scheme is expected to expand with the planned establishment of a Landcare Foundation in the coming months.

## Unexpected results

### 1. Landcare in School

Landcare has been integrated into the curriculum of a high school in Lantapan. With the enriched curriculum, the students learn of their environment and initiate conservation activities together with their teachers and parents. A portion of the school's property has been developed into a landcare showcase for nursery and agroforestry.

In addition, nine elementary schools included landcare in their training programs for students. In both categories, the schools are assisted by Landcare Facilitators of ICRAF.

A "Family Tree" project is an on-going activity of the Landcare in School. Parents of graduating students plant trees around the school and the junior students take charge of the care and maintenance.

Landcare in School collaborated with the Sanguniang Kabataan or SK (Youth in Local Governance) in a summer-long river care project. Funds for the project came from the SK allocation.

### 2. Professionals for Landcare

A group of young professionals in the province of Bukidnon have organised themselves to form the Kaamulan Professionals in Landcare. The group provides voluntary services during training and encourages its members to promote Landcare in their respective organisations.

### 3. Partnerships, cooperation and linkages with agencies outside Bukidnon

Widespread information about landcare as an effect of 60 cross visits and participation in conferences, congresses, seminars and other information-sharing gatherings have initiated partnerships and linkages with LGUs and NGOs like the Catholic Relief Services – Southeast Asia and the Pacific Regional Office, CARE Philippines, Watershed Management Council of the Philippines, Foreign-assisted projects with upland development components, such as the EU-funded Upland Development Programme in Southern Mindanao, and the IFAD Western Mindanao Community Initiatives Project have also established partnership and cooperation with ICRAF. Through Landcare Australia, linkage was also established with the Australia-based Better Earth Project for the analysis of micronutrients from soil samples collected from selected farms of Landcare members.

### **New thinking, knowledge, skills developed to improve performance**

#### 1. Agroforestry farm as business

Sustaining interest and participation of upland farmers in R&D activities that generate results and benefits in the long term should consider economic needs. Integrating short-term components such as high value vegetables and livestock in upland farming systems can answer to the needs for food and cash of subsistent farmers, thus, ensuring participation.

Linking farmers with buyers or processors for their timber and other farm products can give them assurance for markets. Market linkages can be initiated through visits to processing plants and testing of wood products for quality requirements. It can start with exhibits and booth displays during conventions, congresses and other gatherings.

Furthermore, helping Landcare groups innovate business ideas and engage in income-generating projects adds to sustainability and organisational growth. Cultivating the idea of managing agroforestry farms as business entities is worth considering in planning for R&D.

#### 2. Policy considerations

Existing policies must be taken into consideration when conducting R&D activities. A review of existing policies that may have bearings on the activity and on its expected outcomes must be included in the list of things to be done. Local ordinances and national policies, such as those related to the regulation or promotion of practices/ technologies and marketing of farm products should be considered.

## **DISCUSSIONS**

### **Effectiveness and efficiency of achieving R&D outcomes**

The initial results of the Landcare R&D in Lantapan suggest that the following be considered in order to improve on the effectiveness and efficiency of achieving outcomes:

#### 1. Complementation

The evolving needs of Landcare suggest the need for complementation of expertise and other resources. In such arrangement, objectives of the activity and the roles and obligations of all participating entities must be clearly understood and accepted. These may be reflected in a memorandum of understanding or memorandum of agreement.

#### 2. Continuing capacity building

The skills and attitudes of those involved must be enhanced through a well-planned capacity and team-building program.

#### 3. Knowing the policies

Review of existing laws and regulations related to the R&D activity and its expected outcomes must become part of the planning process. The absence of supportive or appropriate laws and regulations may suggest some policy studies.

#### 4. Good coordination and communication

Human, financial and physical resources need to be coordinated well for timely availability. Good communication is a key to good coordination, and this can be done through monthly meetings of the municipal Landcare Association and day-to-day informal interactions. Having the resources and facilities for information dissemination, ICRAF is taking the role of coordinator.

### **Principles, methods and technologies used in R&D**

#### 1. Homogeneity of group members

The management and operation of a group that is involved in R&D is easier and more efficient if there is homogeneity among the members. A *sitio* level Landcare group in Kaatoan village in Lantapan, composed of a group of households belonging to the same clan was able to establish and manage easily a communal farm for their own research and demonstration activities. The group aims to develop an agroforestry farming system that showcases a combination of trees and high value vegetables. The members of the clan also belong to the same religion.

#### 2. Local needs-based

An R&D intervention can easily be appreciated and supported by both the community and the local government if it is based on local needs. Experiences in Lantapan indicate that the adoption of the technologies promoted through the local needs-based landcare is widespread. Moreover, they also indicate the acceptability of landcare as an approach of LGUs in NRM.

### **The design of R&D**

Responding to both short-term economic needs and environment protection concerns can draw interest of farmers and other sectors to participate in an R&D activity and sustain its gains.

### **The performance assessment of R&D**

Assessing the performance of R&D must include looking into the strength and effectiveness of the individual partners and of the partnership or consortium as well. Of particular interest would be the leadership, or the coordination function, which plays a key role in making the partnership in efficient functioning.

### **The Leadership of R&D in rural agricultural systems**

A lead institution or individual of R&D must have the following capabilities and properties:

1. Skills and mechanism to coordinate activities and resources
2. Skills and mechanism to access, package and disseminate information
3. Appreciation of local knowledge and practices
4. Access to information on policies that may affect R&D activities
5. Ability to link with service and information providers, including potential markets
6. Technical and social skills

## **CONCLUSIONS**

### **Conclusions about achieving R&D outcomes and improving R&D performance**

1. Appreciation and use of local knowledge and practices

Appreciating and blending local ecological knowledge (LEK) and practices with scientific processes facilitates the R&D process. Through consultations with local people, local technologies and practices that can be evaluated or blended with new technologies can be easily identified. The easy adoption of a locally based technology has been observed in the promotion of NVS.

2. Establishment of an IEC Component

As Landcare is gaining ground and popularity as local R&D, various groups of varied orientations have contacted ICRAF for planned cross visits, orientation and collaboration. Thus, the need to design an appropriate IEC program for landcare.

The IEC component or program takes charge of communication planning, management of information, information needs assessment, documentation of processes, dissemination of results, materials pre-testing and production, IEC exchange, visibility, feedback and impact evaluation.



At the village level, facilitators can help Landcare groups design their own community-based IEC activities. Folk media, like stage drama, riddles, or *balagtasan*, which blend well with cultural festivities in the community, can be effective in dealing with cultural resistance to technology.

For a number of years, Lantapan's radio program on landcare has been on an open-audience airing so that monitoring its reach and impact has been very difficult. School- on- the Air (SOA), a radio broadcast, which caters to enrollees, is worth exploring. This way, the local R&D will have a clear following of its audience and its impact. Selected farmers or Landcare leaders can be trained to co-host episodes of the SOA to enhance credibility of experiences.

### 3. Sustaining mechanism

#### *Economic opportunities*

Especially for long term R&D, the interest and participation of groups and individuals must be sustained. Among poor upland communities, short term economic needs have to be addressed by linking them with livelihood projects or by helping them develop income-generating activities, such as the "seedling and services" package offered by the Lantapan Landcare Association. In an agroforestry setting, cash crop and animal components can answer immediate needs for food and cash.

#### *Institutional Support*

Landcare must be anchored to more permanent structures like the LGU. Landcare can be mainstreamed into the municipal or city annual investment plan from which it can get budgetary allotment and basic services. Likewise, Landcare accreditation by the LGU at the municipal level will allow representation in the local governance.

With landcare at the mainstream, performance of the MAO and the Agricultural Technicians will also be measured against how well they have facilitated the growth of their respective Landcare groups.

### 4. Linkage to markets and access to market information

A few years from now, timber trees from the Landcare farms will be due for harvest. This early, Landcare groups must be able to link with good, stable markets for their product and access timely information on market demands and quality/quantity requirements for specific timber species. The groups must already discuss policies regarding marketing of this commodity so that requirements will be complied with properly and promptly.

Market demands and specifications are important considerations in their decisions to expand their plantings. As a group, the LLCA can be a strong mechanism for better market arrangements.

## **Implications for increasing individual, team, project or organizational confidence, motivation and performance in achieving R&D outcomes**

### 1. Clear goals, objectives and expected outputs

Increasing individual, team, project or organizational confidence, motivation and performance starts with communicating and understanding goals, objectives, expected outputs, and strategies clearly among all members.

### 2. Capacity building

Training must be need-based and conducted effectively. Plans must be based on skills inventory, role clarification and training needs assessment (TNA).

Training for nursery establishment and management, agroforestry and trees must include markets and marketing so that farmers will be guided which better option to take from the basket.

ICRAF and partners must facilitate wider linkages for training to respond to varied emerging needs – economic, land tenure, income generation, markets and marketing, organisation development and others.

### 3. Incentives

At the beginning, training, cross visits and similar exposures were enough incentives for Landcare groups. But as demands for leadership, knowledge sharing and hosting cross visits soared, a more sustaining incentive system becomes necessary.

Particularly in situations where participating communities or groups live in subsistence levels, opportunity costs incident to participation in Landcare undertakings evolved as an important issue. Both the LLCA and ATSA agreed to receive minimal “facilitation fee” for attending to visiting groups and serving as trainers for groups coming from other places. Such fee does not apply to groups coming from Lantapan.

Better still for government to institutionalise rewards program for groups participating in Landcare or NRM. This can come in the form of projects for Landcare communities, such as farm-to-market roads, post-harvest facilities, marketing assistance, capacity building, and the like.

The upcoming project of ICRAF called Rewarding the Upland Poor (in Asia) for the Environmental Services that they provide (RUPES) is an initiative that would like to bring to a balance the costs and benefits of environmental services. It aims to identify mechanisms by which environmental services provided by the upland communities can be rewarded by the beneficiaries of the effects of such services.

Likewise, for technical facilitators and LGUs, training, appropriate compensation, recognition of achievements and merit increases in return for good performance can serve as incentives.

## **Important implications for improving the design, leadership and performance assessment of R&D**

### Design

1. Consider short-term economic needs of farmer-cooperators. An R&D activity can be designed to provide for an intervention that can respond to short-term needs while waiting for long-term results and benefits.
2. Consider the farm as a business. Upland farms must be managed as business entities if they have to become sustainable for both economic and environmental purposes. Efficient ways of managing farm resources and products must be identified or developed.
3. Consider local leaders, knowledge and practices. Tapping and combining them with scientific knowledge and practices would facilitate the R&D process.
4. Consider project duration. The length of an R&D activity has a bearing on the impacts that it is expected to create or achieve.

### Leadership

A lead institution or person must be designated, agreed upon and recognised by all participants in order to put meaning to the role of leadership. A leader must be an effective coordinator and must possess technical and social skills and sensibilities.

### Performance assessment

In assessing the performance of an R&D project, the capability of the target beneficiaries and partners to sustain its gains must be considered.

## **High impact opportunities to improve R&D outcomes**

Based on the above experiences and observations with the on-going Landcare R&D, the following opportunities may create high impacts to improve R&D outcomes:

1. Complementation of expertise and other resources
2. Tapping local leaders and combining recognised local knowledge and practices with science
3. Prioritizing R&D in local program, allocating resources and providing supportive policy environment
4. Identification and/or development of markets for products
5. Incorporating interventions to support short-term needs (short-term components of the farming system, livelihood program, income-generating activities)
6. Identification of incentive and reward mechanisms for Landcare groups, leaders and facilitators
7. Developing an IEC component as mechanism for an effective and efficient packaging and dissemination of information, including results of R&D
8. Realistic project duration against desired impacts

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## APPENDIX 1

### Glossary of Key Terms

1. Agroforestry - the planting of trees on farms or on landscapes
2. *Barangay* - a local term in the Philippines for village
3. Landcare - an organised, community-based and multi-sector approach to a rapid and inexpensive adoption of conservation farming and agroforestry practices among upland farmers
4. Local Government Unit - refers to the municipal government
5. Natural Resources Management Development Plan - local government plan for the management and development of natural resources within the municipal territory
6. Natural Vegetative Strips - narrow strips of live, naturally growing grasses and herbs intentionally left unplowed and allowed to vegetate along the laid-out contours of sloping farms
7. *Sanguniang Kabataan* - an organisation of Filipino youth at the village level
8. *Sitio* - a local term in the Philippines for sub-village.