

## OUTPUT 2. STRATEGIES AND ORGANIZATIONAL PROCEDURES FOR PR, DEVELOPED

### Milestones

- \* Strategies for Enabling rural innovation developed in Africa
- \* FPR approaches developed in Latin America validated in Africa
- \* Methods for participatory agro enterprise development systematized and available for users
- \* Seed enterprises established at village level in two African countries.
- \* Areas in Kenya identified with local partners for evaluating and testing PM&E systems
- \* Families in a pilot site in Colomi, Bolivia identified and characterized their well-being.
- \* Suitable CIAL self-financing mechanisms identified and documented.
- \* Participatory research and validation on new alternatives for improving productions systems.
- \* Lulo growers identified in two zones of Cauca Province, interested taking part in a participatory varietal selection project (Pescador and Tierradentro).
- \* Five improved Lulo cultivars selected by farmers in each zone.

### Developing a scaling-up strategy for “*Enabling Rural Innovation*” Project

**Researchers:** *Rupert Best, Colletah Chitsike, Robert Delve, Pascal Sanginga, and Susan Kaaria*<sup>1</sup>

#### ***Background***

Growing evidence demonstrates that participatory research (PR) approaches can increase the benefits of agricultural research for resource-poor smallholders living in rural areas. These methods not only address the specific needs of poorer farmers and develop technologies that are better suited to their conditions, but they also empower farmers by giving them control over the research agenda and by building community-based organizations. Participatory approaches have often been criticized, however, because their success is only at the local level and therefore their impact is limited (e.g., on the small group of farmers participating in the project). The potential of PR approaches to impact on rural livelihoods will be realized only if promising technologies can be developed, disseminated and adopted by farmers.

During a recent retreat, the Enabling Rural Innovation (ERI) team decided it was critical to develop a scaling-up strategy to ensure that these considerations were built into the project right from the beginning. The definitions and objectives used for scaling up are

---

<sup>1</sup> All contributors are scientists at CIAT-Africa Office, PO Box 6247, Kampala, Uganda.

consistent with those developed by the CGIAR-NGO committee at a conference in the Philippines (IIRR, 2000), which defined the objective as follows: “*Scaling up leads to more quality benefits to more people over a wider geographic area, more quickly, more equitably and more lastingly.*”

Consequently, it is evident that if PR approaches are to achieve scaling-up objectives, these approaches must demonstrate the ability to benefit large numbers of poor people across large areas within reasonable time frames. Developing strategies for scaling up has been the center of much recent debate within Research and Development (R&D) institutions, especially those concerned with natural resource management (NRM). Several international workshops have been carried out (Cooper & Denning, 2000; Güendel & Hancock, 2001). These workshops aimed to identify “best practice” and strategies for scaling up of NRM research (Güendel & Hancock, 2001). The workshops identified several issues critical for successful scaling-up efforts:

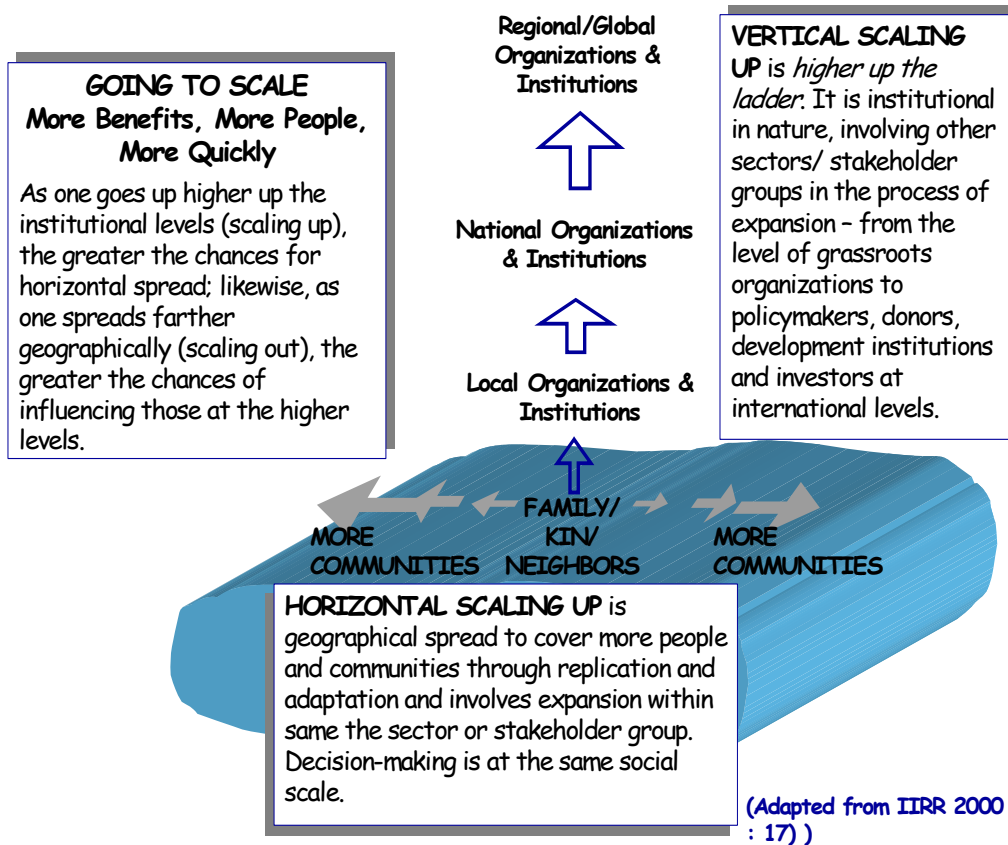
- Developing research partnerships and linking with other stakeholders
- New modalities for doing research; PR identified as a key area
- Capacity building to increase the pool of people with skills
- Integration of monitoring and evaluation to enhance learning, build in corrective loops, and measure progress and evaluation of impacts
- Institutionalizing scaling-up, with a focus on vertical scaling-up to ensure feedback of research results to policy and research agendas and vice-versa
- Enhancement of sharing and learning from other fields (e.g., health sector, which has a wealth of experience in developing participatory approaches and scaling-up strategies)

### ***Why scale up the ERI framework?***

- Communities applying ERI framework for better decision-making
- Institutionalization of methodology within existing partners
- New partners applying the ERI framework in their ongoing work with communities
- Policymakers within governments, NARS, universities, extension, and NGOs aware and supportive
- Adoption of technology within pilot communities and other communities
- Focus on scaling-up approaches, methods and technologies

### ***Developing a scaling-up strategy***

To achieve the foregoing objectives, it was important to develop strategies based on who the target was and at what level the impact was desired. Therefore, specific strategies were developed for scaling up at different levels: within the community, across to other communities, within the district, within the country (nationally) and across countries (internationally). Figure 1 presents the different levels of going to scale graphically: vertically and horizontally. Table 1 demonstrates specific strategies for scaling up and out at different levels.



**Figure 1. Scaling up as vertical and horizontal integration strategies.**

**Table 1. Specific strategies and activities for scaling up and out at different levels.**

<b>Levels of Scaling Up</b>	<b>Objective of Scaling Up/Out</b>	<b>Partners, Institutions &amp; Government<sup>2</sup></b>	<b>Specific Activities</b>
<b>Within the community</b>	<ul style="list-style-type: none"> <li>✓ Adoption of technology within pilot communities and to others</li> <li>✓ Scaling out of ERI framework by other groups not in initial groups</li> </ul>	<ul style="list-style-type: none"> <li>✓ Africare</li> <li>✓ Local government structure</li> <li>✓ Agromanagement</li> <li>✓ Farmers groups (initial agreement to train other groups)</li> </ul>	<ul style="list-style-type: none"> <li>✓ Feedback from research group to community</li> <li>✓ Active role of champion farmer in new farmer groups</li> <li>✓ Community drama; e.g., on gender</li> <li>✓ Community development facilitators to train other groups</li> <li>✓ Involvement of local and district government structure in all aspects</li> </ul>
<b>Across communities</b>	<ul style="list-style-type: none"> <li>✓ Communities applying ERI framework for better decision-making</li> <li>✓ Adoption of technology within pilot communities and to others</li> </ul>	<ul style="list-style-type: none"> <li>✓ Africare</li> <li>✓ Local and district government structure</li> <li>✓ Champion farmers</li> </ul>	<ul style="list-style-type: none"> <li>✓ Exchange visits</li> <li>✓ Awareness building and involvement of local government</li> <li>✓ Identification of interested organizations and institutions or interested groups</li> <li>✓ Community Development Facilitator to build capacity of new service providers</li> <li>✓ Champion farmer has active role in new farmer groups</li> </ul>
<b>Within the district</b>	<ul style="list-style-type: none"> <li>✓ Institutionalization of methodology within existing partners</li> <li>✓ New partners applying the ERI framework in their ongoing work with communities</li> <li>✓ Policymakers within governments, NARS, universities,</li> </ul>	<p>Identification of different types of partners:</p> <ul style="list-style-type: none"> <li>Agricultural research</li> <li>NGOs</li> <li>Ministry of Agriculture</li> <li>✓ Farmer associations</li> <li>✓ Local government</li> <li>✓ Consortium of service providers</li> <li>✓ District Extension Coordinator (DEC)</li> </ul>	<p><b>Development of scaling-up strategy and work plans with partners:</b></p> <ul style="list-style-type: none"> <li>✓ Evaluation of institutionalization of ERI approach among existing partners</li> <li>✓ Analysis of partnership processes and scale up lessons</li> <li>✓ Identification of capacity-building and technical backstopping needs</li> <li>✓ Find out about membership in CEED</li> <li>✓ Share results and if there is demand, provide training of CEED members on ERI approach</li> </ul>

<sup>2</sup> Role of partners – new & old.

Levels of Scaling Up	Objective of Scaling Up/Out	Partners, Institutions & Government <sup>2</sup>	Specific Activities
	extension and NGOs aware and supportive		
<b>National</b>	<ul style="list-style-type: none"> <li>✓ Institutionalization of methodology within existing partner institutions</li> <li>✓ Policymakers within governments, NARS, universities, extension and NGOs are aware and supportive</li> </ul>	<ul style="list-style-type: none"> <li>✓ Agricultural research</li> <li>✓ NGOs</li> <li>✓ Ministry of Agriculture</li> <li>✓ Farmer associations</li> <li>✓ Local government</li> <li>✓ Consortium of service providers</li> <li>✓ DEC universities</li> <li>✓ APEP–USAID project (Chemonics)</li> <li>✓ International NGOs</li> <li>✓ CGIAR Centers: Future Harvest Uganda</li> <li>✓ Key government policymakers</li> <li>✓ Parliamentary group on food security and land degradation</li> </ul>	<p><b>Institutionalization of approaches</b></p> <ul style="list-style-type: none"> <li>✓ Participation in national agricultural shows for PR</li> <li>✓ Evaluation of institutionalization of ERI approach among existing partners</li> <li>✓ Analysis of partnership processes and scale-up lessons</li> <li>✓ Identification of capacity-building and technical backstopping needs</li> <li>✓ Build capacity of community development facilitators and assistants in facilitating scaling-up strategies</li> </ul> <p><b>Engaging policymakers</b></p> <ul style="list-style-type: none"> <li>✓ Field visits of key government policymakers (Minister, National Agricultural Advisory Services-NAADs, National Agricultural Research Organization)</li> <li>✓ Attend meetings and seminars, make presentations</li> <li>✓ Posters and papers at conferences</li> <li>✓ Develop simple publications and distributed widely</li> <li>✓ Curriculum development with University</li> <li>✓ Developing training guides</li> </ul>
<b>Across countries</b>	<p>New partners applying the ERI framework in their on-going work with communities</p> <ul style="list-style-type: none"> <li>✓ Policymakers within governments, NARS, universities, extension, and NGOs, aware and supportive</li> </ul>	<p>Partnerships with organizations working across countries and regions:</p> <ul style="list-style-type: none"> <li>✓ Participatory Ecological Land Use Management-PELUM</li> <li>✓ Networks: Eastern and Central Africa Bean Research Network -CABREN</li> <li>✓ AFNET</li> <li>✓ International NGOs: Catholic Relief Services-CRS</li> </ul>	<ul style="list-style-type: none"> <li>✓ Participation in international meetings and conferences</li> <li>✓ Posters and papers at conferences</li> <li>✓ Agroecology highlights</li> <li>✓ Curriculum development or testing of guide</li> <li>✓ CIAT-Africa web-site</li> <li>✓ Proposal writing</li> <li>✓ Publishing peer review articles</li> </ul>

## References

Cooper, P.J.M.; Denning, G. 2000. Scaling up the impact of agroforestry research. Report of the agroforestry dissemination workshop (14-16 Sept. 1999) International Center for Research in Agroforestry (ICRAF), Nairobi, Kenya

Güendel, S; Hancock, J. 2001. *Scaling up strategies for pilot research experiences*. Workshop 23 – 25 January 2001, Whitstable, Kent, UK. Natural Resources Institute, United Kingdom. (workshop report)

IIRR (International Institute of Rural Reconstruction). 2000. Going to scale: Can we bring more benefits to more people more quickly? Silang, Philippines.

# **Enabling rural innovation in Africa: Integrating farmer participatory research and participatory market research**

**Contributors:**<sup>3</sup>*Pascal Sanginga, Colletah Chitsike, Rupert Best, Robert Delve, Susan Kaaria, Roger Kirkby*

**Collaborators:** *Partners in Malawi, Uganda and Tanzania*

## ***Introduction***

Farmer participatory research (FPR) is receiving considerable recognition in both international and national agricultural R&D organizations as an important strategic research issue, vital to achieving impacts that benefit poor people in marginal, diverse and complex environments. There is now a large body of literature that demonstrates considerable advantages and the potential of involving farmers in the research process (Ashby et al., 2000; Lilja et al., 2001; Pretty and Hine, 2001; Martin and Sherrington, 1997; Okali et al., 1994). It is argued that FPR can significantly improve the functional efficiency of formal research (e.g., better technologies, more widely adopted, quicker and broader impacts) and empower marginalized people and groups to strengthen their own decision making and research capacity to make effective demands on research and extension services, thereby resulting in payoffs for both farmers and scientists.

Until recently, however, the emphasis has been on food security crops and natural resource management (NRM), with little attention to the income needs of poor farmers. This resulted in improving subsistence rather than market-oriented production systems. A major constraint to improving the livelihoods of smallholder, resource-poor farmers is their ability to access markets. Farmers' financial benefits from agriculture are often reduced by their limited opportunities and skills for identifying markets for their produce, and by low bargaining power with such rural service providers as market middlemen, agricultural extension agents and researchers. Key shortcomings for both FPR and agricultural research are failure to link farmers to markets and increasing incomes for marketing agricultural products. A key challenge today is to create an entrepreneur culture in rural communities, where farmers produce for markets rather than trying to market what they produce. Enhancing the ability of smallholder, resource-poor farmers to access market opportunities and actively engaging in them is one of the most pressing development challenges facing both governments and nongovernmental organizations (IFAD, 2001; IFPRI, 2002; Kindness and Gordon, 2002).

On the other hand, a market-oriented production system is likely to lead to land degradation and the unsustainable use of natural resources, which can eventually limit the potential for market production. Sustained growth in profitability will depend upon continued improvements in NRM technologies, which are key for increasing yields in low-external input farming systems. Sustainable improvements of rural livelihoods at the household level depend upon much more than improved access to technology and markets. It is now widely accepted that providing sustainable support to women farmers is a critical element of any rural innovation system. There is no question that integrating gender-sensitive participatory approaches in agricultural R&D projects is a win-win strategy for reducing hunger in Africa (IFAD 2001; IFPRI 2002). Because

---

<sup>3</sup> All contributors are scientists at CIAT-Africa Office, PO Box 6247, Kampala, Uganda.

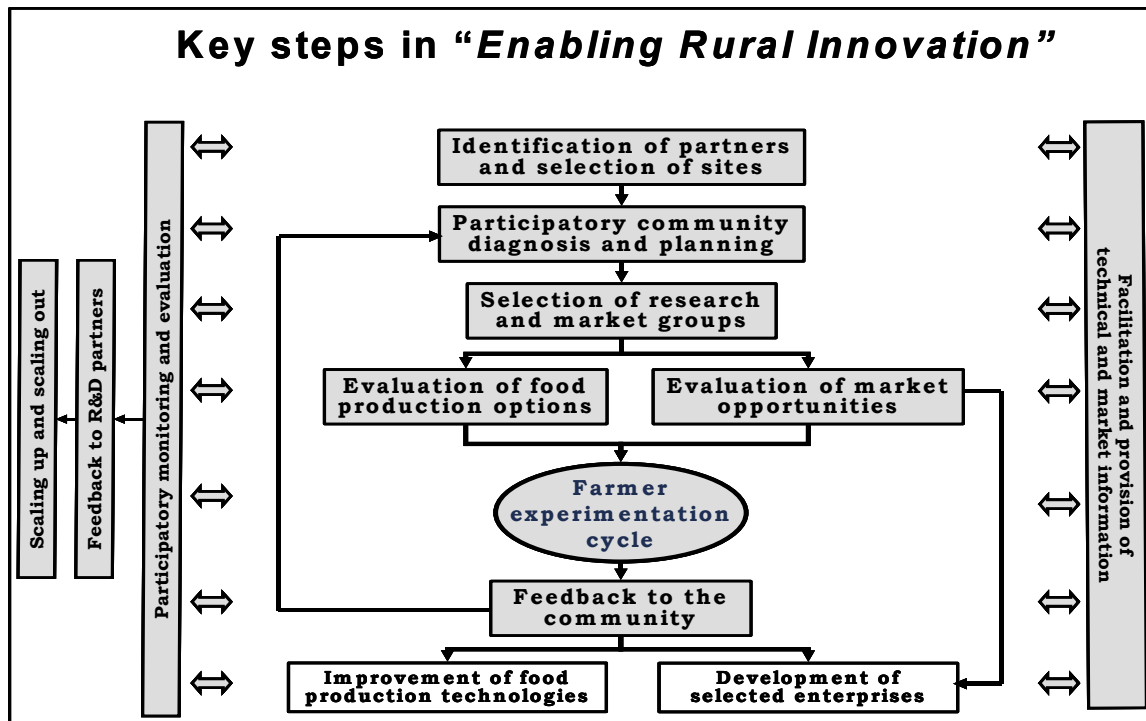
of their critical role in food production, processing marketing and consumption, women should be at the core of any strategies to improve rural livelihoods and build the assets of the poor. Recent research has also shown the importance of social capital foundations for successful innovations and community development. Social capital encompasses the nature and strength of existing relationships among members, their ability to organize themselves for mutual beneficial collective action around areas of common need and managing the social structures required to implement such plans; and the skills and abilities that community members can contribute to the development process (Uphoff and Mijayaratna, 2000; Woolock and Narayan, 2000). Social capital is an important asset that can be called on in a crisis, to the extent that communities endowed with a diverse stock of social capital are in a stronger position, not only to confront poverty and vulnerability but also to take advantages of new opportunities (Grootaert, 2001; Narayan and Pritchett, 1999). Consequently, measures to strengthen the social capital of local communities will lead to the improved adoption of sustainable NRM practices.

This report summarizes a novel approach to participatory research (PR) being applied in eastern and southern Africa: “Enabling Rural Innovation” (ERI), a partnership between R&D organizations that links small-scale farmers to markets to improve food security, income and NRM. ERI is a mutual learning process approach for empowering rural communities and facilitating an enabling environment to access and generate technical and market information for improving decision-making and capacity to innovate, experiment, access market opportunities and better manage their resources in a more sustainable manner. More specifically, it links farmer PR, market-opportunity identification and development of technologies for integrated soil and nutrient management, with a focus on women and the poor. This report describe lessons and challenges in implementing this participatory learning and action research through a learning alliance between R&D partners and farmers’ groups in pilot sites in Uganda, Malawi and Tanzania.

### ***Methods***

CIAT defines rural innovation is defined as “the process by which various stakeholders generate, adapt or adopt novel ideas, approaches, technologies or ways of organizing, to improve on- and off-farm activities, so that the rural sector becomes more competitive in a sustainable manner”. In Africa this definition was made operational through the participatory action research project, “Enabling Rural Innovation,” which integrates farmer PR and participatory market research (PMR) to improve rural livelihoods. The key steps in implementing ERI are shown in Figure 1. The details of the conceptual framework for ERI are described in greater detail in the paper, “Strategy Document: The Resource-to-Consumption Framework as a Strategy for “Enabling Rural Innovation (ERI),” also in Output 2 of this report.





### ***Results and discussion***

This section highlights the results of applying the ERI framework, and discusses the implications for R&D, which include building and managing partnerships, selecting communities and farmer groups, participatory diagnosis (PD) and community visioning; market opportunity identification and community agroenterprise selection; farmer experimentation; promoting gender equity and building social capital, strengthening human capital and scaling up.

### ***Building and managing partnerships***

Tim Smith, who conceived the Eden Project (Cornwall, UK), argues that “ Innovation is not about hiring an Einstein or creating a slogan. Everybody is capable of it, and the first sign that it is happening is ***when people work together***, excited because they want to be there, focused on finding a solution to a challenge they all understand.” (emphasis added)

**Table 1. ERI sites and partners in eastern and southern Africa**

Countries	Sites	Partners
Malawi	Dedza Ukwe Kasungu	Dept. of Agricultural Research Services (DARS) Lilongwe Agricultural Development Division (LADD) Plan International
Uganda	Kabale Masindi-Hoima Tororo	National Agricultural Research Organization (NARO) Africare Africa2000 Network CashFarm ActionAid Vision for Rural Development Initiatives (VIRUDI) African Highlands Initiative (AHI)
Tanzania	Lushoto Hai	Traditional Irrigation and Environmental Development Programme (TIP) Africa Highlands Initiative (AHI) Hai District Council (District Agricultural and Livestock Development Office) Sanya Agricultural Development Programme
<b>Total</b>	<b>8</b>	<b>14</b>

Partnerships, a key principle of ERI, are becoming increasingly important for R&D organizations to deliver services to the rural poor and achieve sustainable rural livelihoods. Traditionally the NARS have been CIAT's key partners. With the ERI approach, CIAT has begun to strengthen its partnerships with national agricultural research and extension systems (NARES) in eastern and southern Africa while finding new partners in the NGO sector who have a more development-oriented mandate (Table 1).

Research has shown that investments in building a strong foundation for partnerships can yield significant benefits. It is important to note, however, that partnerships can be challenging and difficult to sustain and manage. A recent literature review indicates that a high proportion of partnerships or alliances either fail or have to be restructured (Gormley,2001 ). Table 2 shows some of the obstacles to effective partnerships and the steps we are taking to manage them.

**Table 2. Obstacles to effective partnerships.**

Obstacles	Steps to Take
Lack of attention to the process of building partnerships and trust	<ul style="list-style-type: none"> <li>✓ Discuss potential barriers to partnership openly and establish norms for working together</li> <li>✓ Be transparent, putting all issues on the table, including the budget, expectations and deliverables)</li> <li>✓ Avoid even the appearance of withholding information</li> <li>✓ Decide together how decisions will be made and how resources will be allocated</li> <li>✓ Ask for input from all partners, listen, don't dominate</li> <li>✓ Be patient, flexible and willing to do things in different ways</li> <li>✓ Confront conflicts quickly and directly</li> </ul>

Obstacles	Steps to Take
	<ul style="list-style-type: none"> <li>✓ Clarify roles and responsibilities</li> <li>✓ Spend time in building social capital</li> </ul>
Communication challenges	<ul style="list-style-type: none"> <li>✓ Have project call meetings at which all partners are present and work together on planning</li> <li>✓ Hold progress meetings at regular intervals</li> <li>✓ Agree on communication channels and protocols</li> <li>✓ Find motivating ways to share information</li> <li>✓ Communicate successes</li> <li>✓ If communication weakens, do something positive about it; don't just let it happen</li> <li>✓ Budget for communication expenses</li> </ul>
Overcommitted partner; uncompleted work or missed deadlines	<ul style="list-style-type: none"> <li>✓ Make extra efforts to achieve realistic resource planning and budgeting</li> <li>✓ Discuss work plans with key staff to help them determine if they can realistically do the extra work.</li> <li>✓ Avoid applying pressure to get them to make promises they can't keep</li> <li>✓ Give reasonable time for the work to be done so that staff can fit it into their work schedules; avoid unrealistic deadlines</li> <li>✓ Keep in touch with the people doing the work regularly; stay connected with them</li> <li>✓ Don't over commit yourself!</li> <li>✓ Build a sense of teamwork and mutual accountability by having periodic meetings</li> </ul>
Not enough support for partnership	<ul style="list-style-type: none"> <li>✓ Involve a senior manager in the formation of the partnership</li> <li>✓ Report progress faithfully</li> <li>✓ Keep senior managers informed</li> <li>✓ Be cautious about making commitments to partnerships that senior managers do not support</li> </ul>
Lack of partnership competencies	<ul style="list-style-type: none"> <li>✓ Build your capacities in partnership</li> <li>✓ Stay open to learning</li> <li>✓ Ask for feedback</li> <li>✓ Invite others to help with more experience on partnerships</li> </ul>

**Source:** Adapted from Gormley, 2001.

To sustain effective partnerships, we maintain regular interactions with partners at different levels, including personal face-to-face contacts, and regular joint visits to field activities. These have included:

- Visit to CIAT HQ for NARES Directors to become familiar with our work
- Needs assessment and planning workshop
- Development of a joint proposal on ERI with the key partners. The proposal received financial support from the Canadian International Development Agency (CIDA) and the Belgian Department of International Cooperation in 2002.
- Project inception seminars and workshops with high-level directors and heads of institutions. In Malawi, for example, the seminar involved the principal secretary of the Ministry of Agriculture, directors of research and extension, and heads of departments. A similar meeting was held in Uganda with the Director General of NARO, Center Managers of agricultural R&D centers, and the senior adviser to the Minister.

- Meetings with heads of department and staff to clarify expectations, discuss roles and responsibilities and implementation strategies
- Regional and national training workshops and capacity-building activities with field-level staff to build necessary skills, understanding of the ERI approach and develop action plans
- Negotiation and signing of partnership agreements and memoranda of understanding, clarifying roles and responsibilities of each partner
- Regular meetings and field visits to develop operational work plans, activity schedules and milestones
- Annual review and planning meetings with field staff, heads of departments and institutions
- Regular communication, sharing of documents and reports, field visits, face-to-face contacts
- Credit sharing and recognition: CIAT has an institutional culture that gives due credit and recognition to national partners and collaborators. The ERI partnership won the GFAR 2003 merit award, presented by the Global Forum for Agricultural Research (GFAR) for the best poster on successful partnership in agricultural research for development. Similarly, TIP, on behalf of other partners, is presenting a poster at the Innovative Market Place at the CGIAR Annual General Meeting (AGM03) in Nairobi, Kenya.

It is important to note that this interactive and iterative process was instrumental in getting buy-in and support from high-level management and ensuring ownership of the process by the field staff at the onset of the project. Because of the different types and nature of partnerships involved in ERI, understanding and strengthening effective partnership between research and development organizations and other rural service providers have become an important project output and research area.

### ***Selecting pilot communities and farmers' groups***

ERI is being implemented with 19 farmers' groups and communities in 8 pilot countries (Table 3), with close to 1000 farmers. The selection of these sites was a result of discussions with partners, field visits and community meetings in potential sites. In selecting pilot sites, the following questions were addressed:

- Is there a real potential for working in this community? (agroecological and socioeconomic conditions, accessibility)
- Are there issues that the majority of farmers consider important enough to commit their time and resources?
- Is there a good potential for scaling out to nearby villages?
- Are there active groups, local social organizations or farmers working together to try and find solutions to problems?
- Are there other development organizations working in the community or willing to work in the community and that can commit resources (human, financial, physical)?
- Is there an active extension or development worker with sufficient motivation and skills (or willing to learn) to be a community development facilitator?
- Is there potential for empowering women and promoting gender equity?
- What is the potential for adding value in current production activities? What are the research issues?

- Is the partner willing to commit resources to meet some of the expenses within the project?

**Table 3. ERI sites and groups.**

Countries	Communities/Groups	No. Farmers
<b>Uganda</b>		
Kabale	Muguli B	47
	Karambo	57
	Nyabyumba	25
	Nyakibande	32
Tororo	Katamata	25
	Awanya	30
Masindi	Katwemukye	21
	Wekambe	25
<b>Tanzania</b>		
Mtae	Dindira Water User Group	50
	Tema-Kelenge	210
Hai	Kware	24
	Sanya Juu Village	12
Lushoto, Shashui	Mzungu A	23
	Kilindi	27
	Kwemashai	23
<b>Malawi</b>		
Dedza	Yazini	37
	Mthala	135
Ukwe	Katundulu	40
	Gwile	57

There was no blueprint for selecting communities or groups. In some pilot sites, we are working with the whole community in a more inclusive process; while in others, we made an effort to build on existing groups or organizations rather than creating and forming new ones. The main features of the selected groups include:

- Regular meetings
- Record keeping. Records are very important monitoring and evaluation tools for the group
- Constitution and by laws (rules and regulations). This helps the group manage internal conflicts and make the responsibilities of each member clear.
- Leadership. Leaders should be committed members who are chosen carefully and who have essential leadership characteristics with a sense of altruism.
- Resource mobilization. Regular group savings and contributions are essential for group performance. Members' contributions to their group activities help build a sense of group ownership and solidarity.
- Effective horizontal linkages within the community and vertical linkages with service providers
- Diversification of activities (implementation of production-oriented activities)
- Self-initiated activities
- Group size (not too large groups)

- Social capital (relations of trust, cooperation, norms, sanctions, social interactions, group dynamics and collective action)

Not all of the communities meet the established criteria, but show good potential for strengthening group development. In some cases, we intentionally select “weak groups” or “weak communities” in order to strengthen them so that they can become more active and successful. Strengthening the organizational capacity of groups and communities is a key ERI objective, which requires commitment and skills in managing social processes and group dynamics.

### ***Participatory diagnosis building on community assets and opportunities***

ERI uses PD as a highly interactive process for establishing dialogue and engaging with farmers to stimulate collective analysis and better understanding of community livelihood assets, opportunities and strategies as a basis for developing community action plans to improve livelihoods. The process has a strong element of connecting with participating communities to create a process for learning and empowering rural people to be agents of their own change. An important principle of this approach is that it starts with an analysis of strengths or opportunities, rather than needs, problems or constraints. It implies recognition of the community’s inherent potential and ability to use these opportunities to achieve better livelihoods.

PD focuses on facilitating community visioning to help people think in terms of long-term vision, beyond the immediacy of daily problems. A typical visioning question asks: *What changes would you like to see in the next five years? What would you like to achieve in the next 5 years?* The different visions expressed by the different groups are then matched with the ERI objectives and strategies to find common ground and develop action plans with rural communities. In facilitating action plan development, force field analysis tools provide ways of generating a shared vision of a future livelihood outcomes and an agreed strategy for achieving the livelihood outcomes. Development of the action plan uses the change formula below:

$$SCE = D \times V \times S_{fs} \times B$$

Where **SCE** = success of a change effort; **D** = dissatisfaction with current condition; **V** = vision of desired future condition; **S** = steps and **fs** = first steps and **B** = belief in the success of the effort.

All the pilot communities have developed action plans based on their vision of future conditions, specifying activities and first steps in relation to the key components of the ERI approach: community enterprise development, farmer experimentation, gender and group dynamics. Effective proactive facilitation skills are used to ensure that concerns and priorities of marginalized groups such as women and the poor are not neglected. The action plans developed during the PD process are regularly revisited and refined at a later period after farmers have gone through the PMR.

### ***Identifying market opportunities and selecting community agroenterprises***

Over the past two years, ERI has been implemented in eastern and southern Africa to test, adapt and disseminate a territorial approach for identifying market opportunities and building profitable agroenterprises (Best, 2000; Ostertag, 1999). The selection of options for generating income requires collecting information that will help the farmer make decisions appropriate to his/her situation.

These enterprises were selected after market and enterprise visits where the income group or market committee is facilitated to conduct PMR to find out information on varieties and types of products that are in high demand and which they think they could introduce to their area, either now or in the future. The final selection of options is undertaken in the presence of the whole community when the market research group presents the results of the market and enterprise visits, production costs and the prices they can expect when they sell. An evaluation of the different options, including cost-benefit analysis and other benefits that the option can bring to different groups, is made for farmers to select the enterprise options with which to start.

Table 4 summarizes the different enterprises and food security options selected by different groups. It can be seen that farmers tend to select existing crops (beans, peanuts, potatoes) and small livestock (goats, pigs, poultry and rabbits) for market-oriented production. After PMR, however, farmers are beginning to select relatively new enterprises as well. For **example, in** Lushoto farmers selected zucchini, a new crop in their communities; while the groups in Kabale decided to develop their enterprise around pyrethrum (*Chrysanthemum cinerariaefolium*).

Pyrethrum is a perennial crop whose flowers are used to extract pyrethrin, used to make a natural insecticide for household insect pests. The demand has continued to grow in the world market as a more environmentally friendly insecticide for household use. Pyrethrum is a relatively new cash crop in Kabale district with a good potential for providing regular income to resource-poor farmers, especially women. In most cases the area occupied by pyrethrum averages 0.06 to 0.25 ha, and the crop is often grown without additional inputs. Agro Management, a private company, began processing pyrethrum in Uganda in 1993. The pyrethrin-extraction factory now draws on harvests from about 525 ha of local farmland, providing work for 10,000 people. Yet this corresponds to only about one-third of the plant's operating capacity. Thus there is a good opportunity to develop pyrethrum as a profitable, income-generating enterprise.

Although some farmers had heard about it, the crop was not grown in the pilot communities so they did not have information on its agronomy and marketing. During the PD process, pyrethrum was selected as a potential new income-generating crop. During the PMR process farmers visited Agro Management and pyrethrum farmers in other communities to collect market information. Pyrethrum was evaluated against other options such as coffee, potatoes, pigs, chickens and beans, and was finally selected because of its low investment cost, guaranteed market and regular income. In addition, because pyrethrum is typically grown in high altitudes, farmers saw an opportunity to use their hilltops, which are usually abandoned land. There were also some other criteria such as an opportunity for bringing back more men into agricultural production by providing them with an income generating crop with the hope that they will also contribute to other agricultural activities. However, the market of pyrethrum was limited to only

one buyer, Agro Management, which purchases pyrethrum flowers from registered farmers on a monthly basis.

Farmers in the two communities were well aware of the financial risks of dealing with a single local firm that currently has only one large client. It was not long before Agro Management experienced serious financial and marketing problems, leaving the company unable to pay farmers for the flowers. Despite this case of market failure, farmers' decisions and reaction on whether to stop or to continue with the enterprise are mixed, as expressed by farmers in the two pilot communities:

*“There is no business without risk. We’ll try something else if there is no market for pyrethrum.” We are happy to have started with research before going into mass production. This has saved many farmers from losing a lot of money, land and labour. We have learnt that it is better to start on small scale before expanding.” “We know that development and income generation are processes that don’t happen overnight. Despite the hardships and risks, we’re all ready to forge ahead and make a go of it.”*

These local distortions and market failures were dealt with through farmer experimentation on a collective learning plot that helped minimize risks to individual farmers. The farmers are now looking for alternative enterprises and have acquired sufficient capacity to evaluate market opportunities, select enterprises and conduct experiments before expanding to larger areas.

**Table 4. Community agro enterprises and food security options selected by farmers’ groups in the pilot communities.**

Country and Site	Enterprises Selected	Food Security
<b>Uganda</b>		
Kabale,	pyrethrum, eggs	common beans
	potatoes, goats	beans
Tororo	beans, peanuts	beans, maize
		beans maize peanuts
Hoima	onions, mangoes, pigs	beans sweet potatoes
<b>Tanzania</b>		
Hai	Beans sunflower garlic tomatoes	beans maize
Lushoto, Shashui	tomatoes, beans, zucchini, red peppers	beans
<b>Malawi</b>		
Dedza	goats, beans, rabbits, pigs	potatoes



Country and Site	Enterprises Selected	Food Security
Ukwe	pigs, goats, beans	Cassava potatoes

A new phase in the process of developing integrated agroenterprises around potatoes started in Kabale, where farmers were linked to a major fast food firm in the capital city. This phase required a much more detailed analysis of the chain of actions and actors involved from production through marketing. The process of designing integrated agroenterprise projects is being expanded in a market facilitator manual which is being developed on the basis of the collective experience of all project partners and stakeholders.

Among the lessons learned, it is essential to build a clear sense of ownership of the process by farmers and build local capacity to identify, evaluate and select market opportunities. Farmers' experimentation proved to be critical in minimizing risks against market failures, even for existing crops and markets. Farmer experimentation also provides a balance between enterprise options and food security.

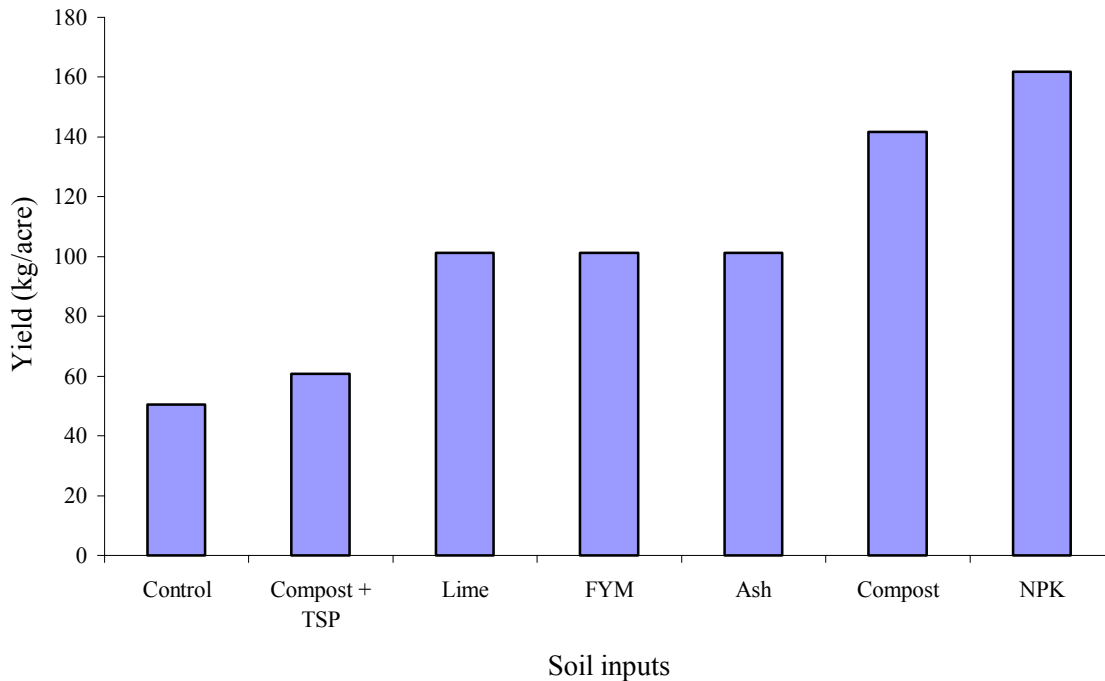
### ***Farmer experimentation/Farmer Participatory Research***

Enhancing farmers' technical skills and research capabilities and involving them as decision-makers in the technology-development process are cornerstones of ERI. Farmers' experimentation results in innovations that are more responsive to their priorities, constraints and needs. Farmer experimentation is linked to the PMR process described above. After the PMR process and selection of enterprise options, farmers are helped in the process of identifying potential constraints that research or experimentation can address for improving the profitability of the selected enterprise option. This process leads to the design and planning of experiments that farmers decide to implement, manage and evaluate.

One of the key constraints to crop productivity and to increasing profitability across sites was identified as declining soil fertility. In addition to varietal evaluation and selection, farmers' experimentation focuses on integrated soil fertility management practices such as:

- Management options better suited to different soil conditions (poor soils, acid soils, different locations within the landscape)
- Crop requirements, where on the slope can it be grown
- Pests and diseases
- Appropriate use of organic/inorganic materials for soil fertility improvement
- Management options aiming at optimal use of legumes in combination with strategic applications of mineral fertilizers to maximize nutrient cycling and soil organic matter replenishment
- Appropriate niches for legume for soil fertility improvement and erosion control
- Testing and evaluation of forage legumes

The experiments are usually established on a group plot for collective learning. The treatments are selected through a negotiation process between farmers and researchers, with researchers providing technical information and suggesting additional treatments. In Kabale, for example, the community selected 12 treatments [farmyard manure, legumes, soil erosion control measures, *marc* compost (pyrethrum residue), agricultural lime, wood ash and organic and inorganic fertilizers], which were established in each village. At the end of this season, participatory evaluations of technologies were conducted with farmers in Muguri B and Karambo.



**Figure 2. Effect of soil input to pyrethrum flower yields**

Although agronomic results showed that the NPK treatment gave the highest yields compared to the other soil inputs (Fig. 2), farmers ranked compost manure highly because of inaccessibility (cost and availability) of fertilizers and agricultural lime. However, transporting manure up the hill is labor intensive and expensive. Farmers argued that with proper management practices (weeding, pruning, timely harvesting), pyrethrum could do as well with no soil inputs in fertile soils. In addition to the pyrethrum experiment, farmers are also testing different legumes and grass species for controlling soil erosion through stabilizing the trench bunds (embankments).

These are being evaluated at specific intervals.

### ***Promoting gender equity and empowerment of women***

Gender and equity are of central concern in all the stages of the ERI process from selecting communities and groups, forming committees, conducting PD and community planning, identifying and selecting market opportunities, farmer experimentation and capacity building. The PD process specifically uses gender-sensitive participatory tools to bring gender issues to the forefront and to create awareness on gender issues in a more systematic manner. These tools include gender-sensitive resource mapping, seasonal and activity calendar, daily activity routine, and various preference ranking methods. Proactive strategies and gender-sensitive facilitation skills are used to encourage women's participation in community meetings (including separate groups of men and women), and to generate a collective analysis of gender relations and dynamics within the community or groups. As a result, in several communities, gender goes beyond division of roles and responsibilities between men and women or encouraging women's participation to develop specific action plans to deal with gender awareness education, group dynamics, nutritional education, HIV/AIDS awareness and education, and supporting women-specific initiatives.

The project has a strong focus on supporting women to identify specific agroenterprises that enable them to use available agricultural technology to their own advantage. Both men and women are encouraged to identify options that can benefit everyone. In Kabale, both men and women selected pyrethrum as an enterprise option. A survey of pyrethrum growers showed that more than 40% of the farmers are women, and many female pyrethrum producers are organized into groups. In addition to pyrethrum, the women also selected poultry (local hens for egg production), which is in their domain. Similarly, in Tororo beans and peanuts, both women's crops, were selected for enterprise development. In Malawi, communities have selected beans and small livestock, which are traditionally managed by women. On the other hand, in Lushoto, the majority of farmers involved in zucchini production are men. There are concerns that women's labor may be used to produce the crop, while men will take over when marketing to control the income. Experience and previous studies on intrahousehold gender dynamics elsewhere in Africa have shown that when a crop enters the market economy, men are likely to take over from women, and that women do not benefit from market-oriented production (Quisumbing et al., 1998; Kaaria and Ashby, 2001). We are closely monitoring intrahousehold gender dynamics as the project progresses as this will be a key aspect of our research areas. Proactive strategies are an integral part of the ERI process for promoting gender and equity, and empowering farmers. The activities included:

- Increasing gender awareness through community drama and community meetings
- Training workshops for scientists to enhance their ability to integrate gender analysis in agricultural research
- Enabling both men and women farmers to evaluate a diverse range of crop and soil fertility management technologies
- Participatory approaches to support women's empowerment and leadership at the community level are integrated as part of the strategy, creating and facilitating forums where women can discuss their livelihood concerns.
- In addition to including women in all project activities, proactive strategies are used to help women identify specific agroenterprises and enable them to use available agricultural

technology to their own advantage. Farmer experimentation maintains the balance between enterprise options and food security.

- Assisting men and women farmers to build assets, particularly small livestock (poultry, goats, rabbits), which are usually managed by men.

***Some of the gender outcomes include:***

- Women have gained confidence as expressed in the following statement: *“We women participate in the work just as the men do. Although I was a little shy at first, I am now supremely confident in my ability to accurately document the work of our group.”*
- Women constitute the majority of community and group members. At all the sites, representation and participation of both men and women in the committee are clearly important criteria when selecting farmers. They are equally well represented on all the committees and some in leadership positions. For example in Ukwe, about 50% of all the committee members are women.
- In Uganda, it was reported that male members of the group are actively taking part in farming activities, compared to nongroup members. Similar observations were made in Malawi.
- We are finding that farmer research groups proved to be a more effective mechanism to involve women and resource-poor farmers in research.
- There is a strong and growing sense of community spirit, cooperation, trust and mutually beneficial collective action in the pilot communities and groups. Farmers have also acquired increasing confidence.

Although considerable progress is being made in promoting gender equity and women’s empowerment, it is important to recognize that addressing gender relations is a long process that requires commitment and effective facilitation skills. There is still a need for a better understanding of the likely implications of market-oriented production to assess the distributional effects and equity of benefits, especially gender dynamics, which we need to consider in developing enterprises and to determine when farmers will actually capture significant market opportunities.

***Strengthening human and social capital***

Creating a critical mass of scientists and development partners is crucial for both enabling rural innovation and scaling up the ERI process. Over the last 2 years, we have conducted over 10 workshops, reaching more than 200 R&D partners to enhance their skills of our partners to implement an ERI process effectively. Our capacity-building strategy is based on five main approaches:

- Introductory training. A typical introductory workshop lasts for 12 days, which is kept flexible for contextual adaptation. The workshop covers facilitation skills, ERI principles and concepts, PDs and community visioning, PMR, building and managing partnerships, gender analysis, farmer experimentation, participatory evaluation of technologies and strategies for scaling up.

- Follow-up workshops review, refine and develop feasible action plans and activities as well as come up with refreshing concepts, approaches, process, tools and skills.
- Action learning. A stepwise process of learning (implementation in the field – analysis – learning – implementation) is adopted, with feedback from the analysis of each stage, enabling modifications to be made. Systematic feedback and analysis are undertaken on the appropriateness of the methods and tools in different situations.
- Mentoring. Field mentoring and coaching are also powerful tools for building capacity of partners in FPR/PMR.
- Training manuals. Because the demand for training and expertise in ERI is increasing in the region, we are developing a series of training guides and facilitators' manuals for integrating FPR and PMR in sub-Saharan Africa.

We anticipate considerable expansion in the demand for training of partners and other NGO staff in ERI process (several requests have been already received and are increasing). Identifying other agencies working with communities and that have an interest in stimulating community innovation and in learning from their experiences will help create a critical mass of agencies. We are pursuing a learning-alliance type of partnership with Participatory Ecological Land Use Management (PELUM), a consortium of over 150 NGOs in eastern and southern Africa to build the capacity of some selected members who can then take on training responsibilities of other NGO members in the region.

At the community level, we are strengthening the organizational capacity and social capital of local communities through training and facilitation of leadership skills, group dynamics, consensus building and negotiation skills for managing conflicts, with attention to NRM. ERI also facilitates horizontal and vertical linkages among communities, and between pilot communities and rural service providers. Farmers in pilot communities have improved their analytical skills and participation in mutually beneficial collective action as well as in local policy formulation and implementation. They have been instrumental in initiating community bylaws for soil and water conservation, and have established strong links between farmer research and market groups and the rest of the community. Nevertheless, it is possible that with the new market orientation, conflicts may emerge between farmer market groups and the rest of the community over distribution of benefits and participation in research or market groups.

To scale up its impact, we are developing a strategy at different levels from local communities to national and regional levels. This strategy defines the different levels for scaling out and scaling up, the objectives and targets at each level, the strategic partners to be involved, and the specific activities that are needed to achieve the set objectives. For greater details on this strategy, see “Developing a scaling-up strategy for *“Enabling Rural Innovation,”*” also under Output 2 of this report.

## References

- Ashby, J.; Braun, A.R.; Gracia, T.; Guerrero, M.P.; Hernandez, L.A.; Quirós, C.A. and Roa, J.R. 2000. Investing in farmers as researchers. Experience with Local Agricultural Research Committees in Latin America. Centro Internacional de Agricultura Tropical, Cali, CO. 199 pp.
- Best, R. 2002. Farmer participation in market research to identify income-generating opportunities. Agroecology Highlights, CIAT Africa, Kampala, Uganda.
- Gormley, W. 2001. Selecting partners: Proactical considerations for forming partnerships. Tips and Tools Series: Collaborative alliances. The organizational Change Programme for the CGIAR Centres. TRG Inc. Washington DC
- Grootaert, C. 2001. Does social capital help the poor? A synthesis of findings from local level institution studies in Bolivia, Burkina Faso and Indonesia. The World Bank, Washington, DC. (Local level Institutions Working Paper no. 10)
- IFAD (International Fund for Agricultural Development). 2001. Rural poverty report 2001: The challenge of ending rural poverty. Rome, Italy: (IFAD).  
[www.ifad.org/poverty/index.htm](http://www.ifad.org/poverty/index.htm).
- IFPRI (International Food Policy Research Institute). 2002, Cutting hunger in Africa through smallholder-led growth. <http://www.ifpri.org/themes/aicha.htm>
- Kaaria, S. and Ashby, J. 2001. An approach to technological innovation that benefits rural women: The resource to consumption system. Cali, CO. (PRGA Working Document No. 13)
- Kindness, H. and A. Gordon. 2002. Agricultural marketing in developing countries: The role of NGOs and CBOs. Social and Economic Development Department, Natural Resources Institute, University of Greenwich, London, UK. (Policy Series No 13)
- Lilja, N.; Ashby, J.A.; Sperling, L. (eds.) .2001 “Assessing the impact of participatory research and gender analysis.” CIAT, Cali, PRGA Publication.
- Martin, A. and J. Sherington. (1997). Participatory research methods: implementation, effectiveness and institutional context. *Agricultural Systems* 55(2): 195-216
- Narayan, D. and Pritchett, L. 1999. Cents and sociability: Household income and social capital in rural Tanzania. *Econ. Dev. Cultural Change* 47(4):871-897.
- Okali, C., J. Sumberg, and J. Farrington. (1994). Farmer Participatory Research: Rhetoric and Reality. London: Intermediate Technology Publications
- Ostertag Galvez, C.F. 1999. Identifying and assessing market opportunities for small rural producers. Tools for decision-making in NRM. CIAT, Cali, CO.

Pretty, J. and Hine, R. 2001. Reducing food poverty with sustainable agriculture: A summary of new evidence; final report from the SAFE-World Research Project. University of Essex, Colchester, UK.

Quisumbing, A.; Brown, L.R.; Haddad, L.; Meinzen-Dick, M. 1998. Gender issues for food security in developing countries: Implications for project design and implementation Can. J. Dev. Studies, Special Issue on Food Security, Oct.

Uphoff, N. and Mijayaratna, C.M. 2000. Demonstrated benefits of social capital: The productivity of farmers organizations in Gal Oya, Sri Lanka. World Dev. 28(11):1875-1840.

Woolock, M. and Narayan, D. 2000. Social capital: Implications for development theory, research and policy. World Bank Observer 15(2): 225-249.

# Developing a collaborative PME research project with the Kenya Agriculture Research Institute: Summary report

Research: *Susan Kaaria*<sup>4</sup>

This meeting aimed to identify potential areas for developing collaborative research activities focusing on strengthening participatory monitoring and evaluation (PME) processes to support adaptive/participatory research programs. It was expected that the results of the workshop would lay the groundwork for developing concrete activities and future plans.

## *The specific objectives of the workshop were to:*

- Discuss the scope of monitoring and evaluations (M&E) systems in supporting learning within R&D institutions
- Share experiences and lessons learned from existing Participatory Monitoring & Evaluation (PME) systems
- Identify opportunities and challenges of establishing and supporting PME systems and identify critical issues in the development of a comprehensive PME system
- Discuss potential strategic areas for M&E technical backstopping and support to strengthen existing systems
- Share and discuss a proposed regional (Kenya and Uganda) project that aims to support and strengthen both participatory and formal M&E systems within R&D institutions

## *Participants*

The participants were from Kenya Agricultural Research Institute (both from KARI HQ and from the Regional Research Centers (RRCs) – Kisii, Kitale, Kakamega, Embu and Mtwapa) and two NGOs (Environmental Action Team, EAT; and Community Mobilization Against Desertification, CMAD).

## *Issues covered during the meeting*

- Scope of both participatory and formal M&E systems in supporting the institutional change processes
- Role of an M&E System in supporting adaptive/participatory research programs from a KARI perspective
- Sharing experiences and identifying opportunities and challenges of implementing PME systems
  - ✓ The case of the FFS PME system
  - ✓ African Highlands Initiative (AHI) example
  - ✓ Community-based PME systems
  - ✓ Presentation of proposed project objectives and output
  - ✓ Identification of opportunities and challenges of establishing and supporting PME systems
  - ✓ Discussions on future collaborative activities

---

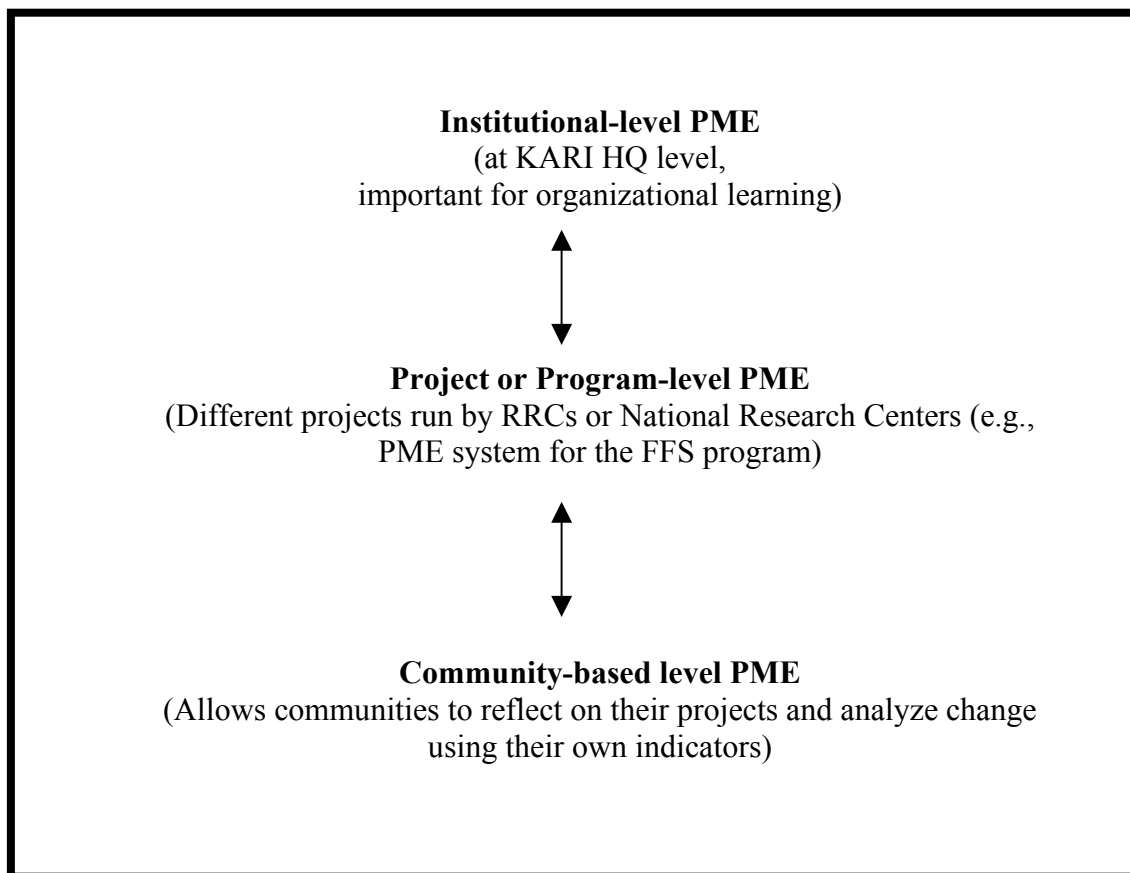
<sup>4</sup> Senior Research Fellow, Rural Innovation Institute, CIAT-Africa, PO Box 6247, Kampala, Uganda.



***Results: Common areas for collaborative research activities***

There was agreement within the group that this project was opportune and was going to strengthen and add value to new and ongoing activities within adaptive research projects in KARI. The results of these discussions were systematized to develop some specific outputs and activities for the project. These ideas were developed during discussions throughout the day as the group tried to identify ways in which to make the proposed project build on and benefit ongoing activities and processes.

During the discussions it was clear that PME would have to be developed at different levels (Fig. 1). Additionally, there was a lot of discussion as to the importance of developing mechanisms to harmonize M&E systems at these different levels and to systematize the information.



**Figure 1: Different Levels of M&E Systems**

### ***Establishing and supporting PME systems in adaptive research projects and at community-based level***

This component of the project would be mostly targeted at project and community levels and would work directly with the RRCs, NGOs and community-based organizations (CBOs). This component will be implemented immediately.

#### ***➤ Lessons from existing PME systems, analyzed and systematized***

- Conduct an inventory of M&E methods being applied by different organizations and within the RRCs
- Conduct a SWOT analysis of existing approaches
- Participate in forthcoming M&E workshop being organized to share experiences in June 2003 to understand ongoing processes
- Identify critical issues, opportunities and gaps in existing PME systems
- Document lessons and experiences in PME "best practices"
- Conduct a workshop to share results

#### ***➤ Potential sites for initial pilot cases, identified and selected***

- Initial sites will include RRCs with a good history of FPR (5 RRCs and NGOs)
- Embu, Kitale, Kisii, Mtwapa and Kakamega; EAT and CMAD
- Conduct sensitization meetings at each RRC to evaluate interest and identify projects that will be involved in the PME
- Select the different case studies based on several criteria:
  - ✓ Case studies where PME can be integrated as part of an existing R&D project
  - ✓ Cases that offer a diversity of experiences: a new project, an existing one, or one with an existing PME project
  - ✓ Identify ongoing projects where PME is needed
  - ✓ Identify projects with an existing PME system already incorporated into the project
  - ✓ Identify new projects where PME can be integrated from the onset
- Conduct a larger stakeholder meeting that would start creating awareness of PME within R&D organizations (link with the June meeting on PME)

#### ***➤ Capacity of partners to establish and support PME systems, strengthened***

- Conduct series of training and follow-up workshops to build capacity of scientists in establishing and supporting PME systems at two levels: (a) community and (b) adaptive research projects. Capacity building should include the following topics:
  - ✓ Identification of different stakeholders and their roles in the PME process (including farmers and other community members).
  - ✓ Strategies for developing appropriate qualitative and quantitative indicators
  - ✓ Integration of both qualitative and quantitative aspects (land size, yields, different measures)
  - ✓ Capacity building for data analysis in PME at different levels

- ✓ Synthesis of PME data to facilitate its use for decision-making at different levels and to provide feedback and learning
- ✓ Development of simple tools that can be easily applied in the field with communities and by project staff

➤ ***Development of an applicable PME system at project and community levels***

- Develop PME guidelines and key principles
- Develop general frameworks that can be adapted across projects/ technologies
- Establish mechanisms to ensure that frameworks and guidelines are applied
- Develop framework for integrating PME systems at different levels
- Develop strategies to harmonize different PME approaches within KARI
- Build in process for continuous evaluation and adaptation of the PME systems
- Build process of continuous reflection into the PME process to identify challenges and opportunities
- Design a database system to organize and systematize the microdata collected by PME processes

➤ ***Scaling up to other projects within the centers***

- Conduct biannual workshops to share and systematize experiences
- Develop mechanism for establishing effective linkages among the different PME systems to allow the agile flow of information and feedback between rural communities and R&D systems
- Develop mechanisms to systematize PME data and to put data/information into a form where it can be communicated
- Develop a core team of scientists within NARS that can train trainers in PME systems.

# **Local perceptions of poverty: The case of the communities of Kanko, Tabla Mayu and Primera Candelaria in the municipality of Colomi, Bolivia**

**Researchers:** *Edson Gandarillas Ch.*<sup>5</sup>, *Juan Almanza*<sup>6</sup>

## ***Background***

The Bolivian System of Agricultural and Livestock Technology (SIBTA) is in the process of being implemented through four Foundations for the Development of Agricultural and Livestock Technology (FDTA), distributed in function of macroregions: the Highlands, Valleys, Chaco and Humid Tropics.

During the last year, the market of technological innovation in Bolivia has been dynamized through the FDTAs. They have begun to put out tenders for the Applied Innovation Technological Projects (PITA), the demands created by these entities are beginning to be responded to, and the suppliers of technology are beginning to work in them.

On the other hand, there are initiatives aimed at improving the process of identifying technological demands (through ATICA, INNOVA, etc.), by incorporating the farmers in agricultural research processes (through the CIALs), improving the strategies of agricultural training (through the Farmers Field Schools), and implementing pro-poor processes. All these efforts are being implemented with the purpose of improving the current innovation system in Bolivia.

In this sense, the project for “Promoting Changes (FoCam) is contributing to the adjustments of SIBTA, carrying out a series of investigations that incorporate mechanisms of Participatory Monitoring and Evaluation (PME) within the setting of the Applied Technological Innovation Projects (PITA), suppliers of technology, but primarily at the level of the demandants of technology (developing their capacities, especially of the poorest).

## ***Objectives***

***In this context, research is being implemented to pursue the following objectives:***

- Evaluate the effects and impacts (social, economic, methodological and technological) of the application of participatory research methodologies (CIALs) within the communal context and their interactions with the local social organization (sindicatos and centrales campesinas) and the local government (municipalities)
- Determine and analyze the effect and impact (social, economic, methodological and technological) of the application of a PME system within the context of interactions among the demandants, suppliers and FDTA (PITAs).

---

<sup>5</sup> Coordinator, Project IPRA - FoCam, Bolivia.

<sup>6</sup> Technician, PROINPA Foundation, Bolivia.

This document presents one of the first tasks that was carried out to develop the first objective of the research. It provides details on the local perceptions of three communities from the municipality of Colomi in Cochabamba, Bolivia. The objective of the document is to identify the perceptions on poverty of farmers from the communities of Kanko, Tabla Mayu and Primera Candelaria.

### ***Methodology***

Diverse authors (Grandin, 1988; IIED, 1992; Scoones, 1988) have reported different ways of classifying well-being, such as the classification of cards, group discussions and the making of maps that indicate the social condition.

The methodology used in this work was proposed by Ravnborg (1999), based on the identification of levels of well-being through the local perceptions of the farmers using the following ten methodological steps

- Definition of the communities to be studied, based on the requirements of the research
- Definition of the classification units in accordance with the research objectives
- Make a list of the families in the community (in the case of Bolivia, the list of the affiliates of the sindicatos of the communities)
- Identification of key informants based on previous interviews with the local authorities in order to identify the people who know the families in the community best
- Identify local terms of well-being, through informal interviews in order not to bias the information from the farmers
- Explanation of the purpose of classification of the families based on well-being (to be done in work with key informants; the objective of the work should be made quite clear so that the data provided are valid)
- Classification of the cards, separately, for each of the key informants
- Description of the piles of cards at the end of this process)
- Record the classification (office work)
- Identification of the average categories of levels of well-being

### ***Results and Discussion***

#### ***Communities studied***

The communities of Kanko, Tabla Mayu and Primera Candelaria, belonging to the municipality of Colomi, Province of Chapare in the Department of Cochabamba, Bolivia, were selected. The criteria for identifying the communities were as follows:

- Existence of CIALs
- Members of the subcentral campesina of Candelaria
- Target communities of the FoCam project

***Classification of levels of well-being***

- ***Community Kanko.*** Table 1 gives details of the levels of well-being identified with three key informants from the community. Four levels were established: wealthy, less wealthy, poor and very poor. The community has 66 families, of which 12% belong to the “wealthy” category, 53% to the “less wealthy,” 27% to the “poor” stratum and 8% to the “very poor.”

**Table 1. Levels of well-being in the community of Kanko.**

<b>Levels</b>	<b>Criteria</b>
Wealthy	5-6 ha of land Land in Corani Houses in Colomi House made of brick House in Sacaba Land in Chapare Nissan Cóndor truck and taxi 10-15 cows 15-30 sheep 3 pigs 1-2 horses Chickens Ducks
Less wealthy	2-3 ha of land House in Colomi House of adobe Pick-up trucks 5-8 cows 10-20 sheep 1-2 pigs
Poor	2 ha of land House of adobe 2 cows 5-8 sheep
Very poor	0.5-1 ha of land House of adobe 1-3 cows 1-3 sheep 1 pig a few chickens day laborer

The perceptions that determine the levels of well-being in the community are owning land, availability of vehicles, owning a house, owning cattle (cows), owning minor species of animals (sheep, pigs, poultry).

The levels “poor” and “very poor” are also characterized by living in the community, while the other levels usually have houses in the nearest town (Colomi) or in the city of Cochabamba. The poor levels have agriculture as their main source of income; whereas the other levels have other income that is not necessarily agricultural in nature. It should be noted that the poorest stratum work as laborers in the community.

**Community Tabla Mayu.** Table 2 provides information on the levels of well-being identified with three key informants from the community. Three levels were established: rich, fairly rich and poor. The community has 38 families, of which 13% belong to the “rich” level, 32% to the “fairly rich”, and 55% to the “poor.”

The perceptions that determine the levels of well-being in the community are owning land, availability of vehicles, owning a house and owning cattle (major and minor species).

The level “poor” is characterized by living in the community, which is different from the other levels that usually have housing in the nearest town (Candelaria) and in the capital of the province, Colomi (fairly rich) or the capital of the Department in the case of the rich. The poor have as their main source of income, agriculture; while the other levels have other sources of income that are not necessarily agricultural in nature. It should be noted that the lowest stratum work as day laborers in the activities of the community and as cargador at the Colomi fair.

**Table 2. Levels of well-being in the community of Tabla Mayu.**

Level	Criteria
<b>Rich</b>	3-4 ha of land Land in Corani House in Sacaba House in Colomi Houses of good material (brick, calamine, cement, tiles, stucco, glass windows) Mobility (Nissan Cóndor truck, pick-up truck and taxi) 5-10 cows <b>8-15 sheep</b> 2 pigs Chickens
<b>Fairly rich</b>	2 ha of land Houses of adobe (Candelaria and Tabla Mayu) 2-5 cows 5-10 sheep 1 pig

<b>Level</b>	<b>Criteria</b>
<b>Poor</b>	0.5-1 ha of land Small house of straw and stone 2 cows 2-5 sheep No pigs or chickens Works as day laborer or cargador at the Colomi fair

### ***Community Primera Candelaria***

Table 3 gives the levels of well-being identified with three key informants from the community of Primera Candelaria. Three levels were established, grouped as “those who have the most”, “those who have” and “those who don’t have.” The community has 62 families, of which 48% belong to the level “those who have the most,” 24% to those who “have” and 27% to the stratum “do not have.”

**Table 3. Levels of well-being identified in the community of Primera Candelaria.**

<b>Level</b>	<b>Criteria</b>
Those who have the most	10-15 ha of land Land in Corani Land in Chapare House in Colomi House in Sacaba Mobility (Nissan Cóndor truck, pick-up truck and taxi) 8-10 cows 10-15 sheep 5 pigs 2 horses Poultry (chickens and ducks)
Those who have	8-10 ha of land House in Colomi 4-7 cows. 5-10 sheep 2 pigs 1 horse
Those who don’t have	Fewer than 4 ha of land 1-3 cows 1-4 sheep Live on small plots inherited from their parents Do not have pigs, chickens or ducks



The perceptions that determine the levels of well-being in the community are ownership of land, availability of vehicles, ownership of houses, ownership of major and minor animal species.

The “does not have level” is characterized by those people who have inherited small lots of land on which they live. Their income comes from farming. The families in the “have” level are characterized by having major and minor animal species, and two houses—one *in* Primera Candelaria and the other in Colomi. Finally, “those who have the most” own the largest surface of land, three houses (one in the town, another in Colomi and one third in Cochabamba), cattle and minor species, and vehicles.

### ***Conclusions***

The criteria of well-being in the three communities are repeated. Basically, the criteria that define the levels are: amount of farming land, land ownership number of houses, owned and number of cattle and minor species owned and model and vehicle and the definition of income by labor force.

The source of income also defines the level of well-being. If farming is the principal source of income in the family, the level of well-being will be in the lower levels of well-being in the community. On the other hand, if the main family income is not farming, for example, transportation, the family has a greater probability of being in the higher levels of well-being of the community.

Of the three communities, Tabla Mayu and Kanko have the largest percentages of families considered to be poor. This is possibly due to their greater distance from the town (Colomi) and therefore a lower possibility of nonfarming activities.

The results of the well-being levels will constitute another criterion for identifying case studies that try to assess the effects and impacts of the CIALs work on the poor members of the communities.

### **References**

- Grandin, B. 1988. Wealth ranking in smallholder communities, a field manual. ITP, London.
- IIED (International Institute for Environment and Development), 1992 Applications of wealth ranking. London.
- Ravnborg, H. 1999. Desarrollo de perfiles regionales de pobreza, basadas en percepciones locales. Centro Internacional de Agricultura Tropical (CIAT), Cali, CO. 60 p.
- Scoones, I. 1988. Learning about wealth, an example from Zimbabwe. International Institute for Environment and Development (IIED), London.

## **Mechanisms for self-financing in community-based research services (CIALs)**

**Researcher:** *Juan Camilo Cock*<sup>7</sup>  
**Collaborators:** *José Jiménez*<sup>8</sup>, *Juan Almanza*, *Fausto Merino*

### ***Abstract***

*The CIALs are groups of farmers elected by the community to do research and try to solve certain local problems. This article synthesizes the results of extensive research on mechanisms for self-financing that the CIALs are promoting. The mechanisms with which the CIALs finance some of the costs of their research and other production and social activities are documented, as well as how they function. One conclusion is that all CIALs finance their trials partially in kind, through their contributions in labor and land for the trials. Some groups have developed more complex mechanisms for generating and administering resources. These are important steps toward reaching self-sufficiency; however, the CIALs are far from being able to finance all their current costs if the costs of training and technical assistance are included. Finally, some recommendations are made for continuing with the study and promoting self-financing mechanisms in the CIALs.*

### ***Introduction***

The CIALs are formed by groups of farmers elected by the community to conduct research on local problems related to farming. The CIAL methodology was developed in Colombia by a team of facilitators from the International Center for Tropical Agriculture (CIAT). It has now been disseminated throughout Latin America (Ashby et al., 2001), with groups of farmers doing research in Bolivia, Ecuador, Honduras and Nicaragua and Venezuela. This has been possible because the methodology has been favorably received in various projects and entities in these countries in search of ways to include the farmers in the formal research processes. However, the projects have set time limits, and the entities have changing priorities. Even those who have a long-term commitment with the CIAL methodology have to diminish their support to the oldest groups in order to form new ones. This means that the CIALs will gradually and in some cases, suddenly, lose the support of the entities and projects. Thus, if these groups are to have continuity, it is necessary to identify mechanisms that permit them to become independent from the entities and projects that helped form them. This does not imply cutting the relations with them; but at that time, the entities should not accompany the CIALs to see whether they have the capacity to continue functioning and doing research on their own. To accomplish this the groups need to achieve independence or self-sufficiency in several fields. On the one hand, they have to have the capacity to design and carry out experiments in such a way that they can identify solutions adequate for their needs. Knowing how to conduct experiments is not sufficient. The group needs a leader and the willpower to keep on with the experiments once there is no technician or agronomist motivating the group. Perhaps one of the most critical points is that the CIALs also have to be able to generate the resources required to finance their trials.

---

<sup>7</sup> Consultant, SN3 Project, CIAT, Colombia

<sup>8</sup> Researchers assistant, FIPAH, Honduras; PROINPA Foundation, Bolivia, INIAP, Ecuador

There is a general need for local organizations to seek alternatives to the external financing of projects to obtain the resources necessary for their functioning. At present there are diverse ways in which the local organizations can gain access to resources. The transition toward some of these options is important if they are to become more sustainable and more firmly anchored in the local community (Wheatley, 2003). One of the options for obtaining resources is that the organizations themselves generate them through different activities. In Latin America there are many documented cases of local organizations that have very effective mechanisms for generating resources (Cock, 2003a; FIDAMERICA 1996, 1999, 2000; Wheatley, 2003). Among those cases there are small businesses, cooperatives, microcredit institutions and NGOs.

Given that their primary objective is research, the CIALs have not been oriented toward this type of activity. To ensure their sustainability, however, it is necessary that these groups begin to generate the resources necessary for their functioning. Despite the fact that they have not focused on generating resources, some CIALs and their second-order organizations have taken the initiative to create mechanisms for generating some of their own income to finance their activities.

At present there are several mechanisms that the CIALs use to finance their trials and other activities. Their application, however, varies a lot. There are groups that have several mechanisms operating, while others have none. In general the mechanisms have been developed by the groups themselves, either alone or with the help of the institutions that support them. As a step towards the search for economic self-sufficiency of the CIALs, research was conducted to document the mechanisms with which the groups finance some of the costs of their research and other activities related to their objectives. The purpose of this inventory is to determine existing mechanisms and then share them with other groups so that they can use them as models, guides or simply as in inspiration to adopt and adapt their own mechanisms. This article synthesizes the mechanisms found in the research; they are documented in much greater detail in the final report of the work (Cock, 2003b).

### ***What is a mechanism for self-financing?***

In this work, the term “mechanism for self-financing” refers to those actions and the norms; that is, the process and the structure, whereby a CIAL covers the costs of its activities and operations.

With the prefix *self-* we want to emphasize the fact that we are interested in those mechanisms whereby the groups generate their own resources or other activities, whereby they themselves are in a position to assume the costs of their activities. This naturally excludes any external contributions of resources such as donations and project resources. In the case of the CIALs there are mechanisms that generate monetary resources with which they can pay certain costs with cash, as well as others that function with contributions in kind, thereby reducing the need for cash to pay those costs. That is frequently the case of financing the land and labor for the trials. The projects, activities, businesses, funds, contributions or any other mechanism whereby these groups get resources constantly to

finance their operations and projects and to comply with their objectives are monetary mechanisms. The profits produced by these mechanisms can be distributed in various ways, but part of them should be used to finance the CIAL's activities.

Finally, being a process, a mechanism, involves several stages: the way in which it contributes the elements that the mechanism itself requires to function, the way in which the mechanism generates resources or reduces the need for them; that is, the operation of the mechanism itself and the way in which the resources generated are invested in the projects and activities.

### ***Methodology***

The research that made this work possible was done in three stages:

- A search was done on Internet to identify cases of self-financing in local organizations in Latin America. This search served to contextualize the CIALs in the environment of local or grassroots organizations in Latin America; to provide access to a source of ideas on the possibilities of the self-financing mechanisms already being used; and to serve as an inspiration for finding new ones (Cock, 2003a).
- A survey on the topic was designed and sent to all the institutions that have implemented the CIAL methodology in order to get a general idea of what self-financing mechanisms there are at present. Those cases that merited a more detailed, in-depth study were selected (Cock, 2003c).
- Visits were then made to Bolivia, Ecuador and Honduras to document these cases with the inputs of the farmers themselves. Field visits were made and in-depth interviews were held with the members of the CIALs and the staff of the institutions that support them.

The discussion of the results is by mechanism, analyzing each one separately. However, one of the most important elements of the self-financing mechanisms is the fact that they rarely function in an isolated manner. In practice, the groups generate their resources by combining the different mechanisms in diverse forms and with varied norms. From an analytical standpoint, however, it is better to separate them in order to analyze them in general; that is, independently of the particular combinations that each group has come up with. Thus other interested groups can adopt and combine them as they wish.

### ***Results***

In the research the following self-financing mechanisms are being used by the CIALs at present:

### ***Contributions***

All the CIALs contribute the research costs related to the land and the labor, generally through nonmonetary mechanisms. In most cases the farmers contribute land and their own labor, assuming the opportunity costs of not using the land and their work for other commercial purposes. For each of these aspects there are several ways to finance them.

***Land. The land is financed in four ways:***

- A member of the CIAL loans the land where the trial is being conducted. In compensation, they help the owner clear the land in fallow and prepare it. Thus the owner of the land does not have to clear the land for the following planting. Sometimes the owner also receives a part of the production as compensation.
- Several members of the CIAL contribute land. A replication of the trial is planted on each lot. The owner of each lot keeps part or all the production from that replication.
- The land is leased and paid in several ways. Sometimes a quota is collected among the members of the CIAL to pay for it; other groups pay it with a percentage of the production.
- The community contributes the land. In the Andean countries the community frequently loans part of their communal land to plant the trial.

***Labor. There are three ways in which the labor for the trials is financed:***

- The entire group works together. All the members contribute their labor in each stage and throughout the trial. Sometimes their work is compensated with part of the production.
- A member is in charge of a replication. When each farmer has a replication of the trial in his/her plot, he/she assumes responsibility for the work in it. The other members of the CIAL participate in the activities that are important for the trial, such as the evaluations. Generally the farmers receive part or all the production from the replication of which they are in charge.
- The community assumes the cost of the work. In the Andean countries where the communities work in *mingas*<sup>9</sup>, the community permits the members of the CIAL to work in their trials on the days of the minga. As this is a day that the members of the CIAL should work for the community, it is the community that assumes the opportunity costs.

***Informal activities***

Informal activities such as raffles, bazaars and sale of food are very common for raising funds. In many cases they are carried out to finance some immediate need; in others the idea is to save the funds and use them later. There are groups that have gathered resources as a result of these activities to build up the initial capital necessary for other mechanisms such as loans or planting a production lot. In general these activities are not related to the CIAL's research activities.

---

<sup>9</sup> Compulsory community service.

### ***Production lots***

Although the purpose of the CIALs is not to generate resources but to test and/or validate technologies, some trials do generate profits, especially in the more advanced phases of production trials and commercial lots. Some groups use the profits from these activities to capitalize the group and be able to finance subsequent stages of the research and other activities of the CIAL. Thus some CIALs have planted production lots parallel to their trials in order to generate resources. In Honduras the second-order associations of CIALs, known as ASOCIALs, have funds to make loans to the CIALs to support production projects. The profits from these production projects serve to capitalize the fund of each CIAL.

### ***Quotas***

A very simple mechanism for generating resources is the setting of quotas or special fees. There are several types of quotas: extraordinary, membership and periodic.

- *Extraordinary.* Members are asked to make an extraordinary contribution at a given moment to finance some immediate need for which there is no money. Many CIALs ask their members to pay a quota when it is necessary to pay a cost in a trial such as some input and the group does not have savings to cover it.
- *Affiliation.* This is a one-time membership fee that a person or group should pay to belong to some organization. The income from this type of quota depends on the number of new members entering a group. In the case of some ASOCIALs, this type of quota has permitted them to procure an initial working fund when they get started. Besides, they have continued to receive contributions from other groups when they become members.
- *Periodic.* This is a payment that each CIAL member makes to his or her group or that each CIAL makes to the ASOCIAL every certain amount of time. This quota provides the most constant and reliable flow of resources. With this mechanism an organization can count on a set amount of money every so often (the membership fee, on the other hand, depends on new members) and their members know that they have that obligation and can therefore include it in their routines as a permanent responsibility (the extraordinary quota, in contrast, is occasional and so it is not generally included in the plans of those who pay it). In general the periodic quota is a mechanism useful for financing the administrative expenses of an organization, given its regularity; however, it is not a mechanism that has the capacity to generate sufficient resources for projects. Their use in groups such as the ASOCIALs can be important for financing some of their administrative expenses.

### ***Savings and loans system***

In Honduras the ASOCIAL Yorito provides a series of services to their CIAL members, which at the same time serve to generate some income to help cover their administrative

expenses:

- *Savings*. Each CIAL has a savings account in which they have to save a minimum amount yearly and beyond that, the amount they want. A low interest rate is paid.
- *Production loans*. The second service is the provision of loans for production projects. The CIAL can take out loans for twice the value they have saved, paying an interest rate of 29% monthly.
- *Loans for storing maize and common beans*. The third service is loans exclusively for purchasing maize and common beans for their storage and later sale during periods of scarcity. The profits from the sale are divided equally between the ASOCIAL and the CIAL that took out the loan.

### ***CIAL petty cash funds***

Some CIALs have their own petty cash funds in which they manage the savings of their members and make loans. Interest is charged for these loans, which generates some resources. The norms that each CIAL has with respect to the contributions to the petty cash fund, the amount and the duration of the loans, the interest that is charged, the way in which the interest paid is distributed, the loan to outsiders and the solidarity funds differ from one group to another.

### ***Storage of maize and common beans***

This mechanism functions in Honduras although it could be applied in other countries. The CIAL purchases maize and common beans at harvest time when the supply is abundant and prices are low, and then they store them in metal silos. In the months prior to the next harvest, these products generally become scarce, and the price goes up. Then the CIAL sells the stored maize and common beans at a much higher price than they paid for them. With this mechanism the CIAL offers a service to their community, increasing the local availability of these products and offering better prices, while generating resources for the group.

### ***Contract planting***

An agreement is made between the producer and the buyer as to the conditions under which the production will be sold. Buyers who need farm products with special characteristics seek farmers who are organized and have experience in contracting their production. The producer group has the advantage that they can ensure a minimum for their production, thereby assuring the profitability of their investment. There are CIALs that are planting under this mode, contracting with municipal and second-order organizations to generate resources as groups.

### ***Small agroenterprises***

A problem that many farmers face is the low price that the market pays for the products they grow; when these products are processed, however, they bring high prices. To improve

the farmers' income and generate some extra income for the CIALs, the generation of aggregate value is being promoted in several countries. A part of the profits that the small agroenterprises of the CIALs generate can be used to capitalize the group's fund and finance some of their activities. In Ecuador and in Bolivia there are experiences with small agroenterprises that add value to potatoes. In Ecuador they are producing potato chips locally; prior to that, they were brought from the city at a much higher price. In Bolivia native potatoes are being selected and packed for a specialized urban market (natural foods). Both are cases that respond to a market (one local, the other, external), process a product that the CIAL produces, and the initial investment is not high.

### ***Conclusions***

Self-financing is, to a certain extent, found in *all* CIALs. For their experiments, the CIALs normally seek a way to finance the land for planting the trials and the labor that they need. As was seen, there are several mechanisms to accomplish this; they vary from one place to another and are linked to the different local practices of the zones where there are CIALs. In many cases cash is not required to finance these costs as the CIAL members contribute their own land and labor or resort to diverse nonmonetary mechanisms for financing them, ranging from payment in kind to traditional mechanisms of reciprocity.

All CIALs also receive support from the facilitating entities to finance the costs of the trials, especially in the form of seed, inputs and outside technical knowledge. This help is either given in kind or cash so that the group itself purchases the inputs that are not available locally. In some cases this investment is needed only for the first trial given that the production gives seed and some resources for the following trials. However, some groups also assume some of the costs of the inputs.

To finance costs for which they require cash, the CIALs look to mechanisms that generate resources for them. The simplest mechanisms for obtaining some resources are using the sale of the production of a trial to finance the following one, collect extraordinary quotas among the members of the group, and organize informal activities such as the sale of food or raffles.

Some CIALs have more elaborate mechanisms for generating resources. These mechanisms have clear operational norms, are independent of the immediate need for resources (i.e., they are more structural than opportunistic), are more constant and frequently bring other benefits apart from generating resources. Some examples of these mechanisms are the systems of savings and loans, the CIAL petty cash funds, small agroenterprises, storage and commercialization, and production contracts. With these mechanisms some CIALs are financing some costs of their trials. Others use them to finance production projects independent from the CIAL trials. Besides generating resources for self-financing, many provide a service for the community.

The only information available on the costs that a CIAL has for an entity is from 1995 and was calculated from CORFOCIAL's budget for supporting their CIALs in Colombia. At that time, it was estimated that each CIAL cost the CORFOCIAL US\$500 a year. This figure serves as a reference for calculating the income that the CIALs need to generate to



cover the expenses they require. At present there are no mechanisms that generate this amount. The self-financing mechanisms available at present generate resources to cover administrative expenses and some or even all the costs of the trials. If the costs of technical assistance and training that includes salaries of technicians and agronomists and logistical expenditures such as transportation—the resources generated by the mechanisms available at present are insufficient.

Self-financing should be seen as a process in which it is necessary to advance step by step. A first step is that the groups pay their trials and their administrative expenses. It should be noted that one of the principal obstacles to self-financing is the paternalism of the entities. Many of the research costs are either given to the groups or they have to pay back less than the entity's original contribution. This is done even in trials that have a high projected profitability. Even when production projects are supported, the amount that should be returned by the CIAL is, in many cases, less than what they were given. In this sense some ASOCIALs in Honduras have advanced considerably and serve as an example of granting loans for production projects that should be paid back fully plus interest. The loans with interest are an important financing mechanism as they stimulate the execution of profit-oriented projects while generating resources for the group that makes the loan (a CIAL or an ASOCIAL).

The CIAL petty cash funds are another important mechanism in this process as they permit the members of the CIAL to save as individuals and as a group. In the concept of self-financing, it is important to have clear ideas as to what the capital of a CIAL is.

The success of the small agroenterprises as self-financing mechanisms depends on multiple factors inherent in the difficulties of agroindustry, which should be analyzed at the time of undertaking a business of this type, but that goes beyond the scope of this work. It suffices to highlight that there are small agroenterprises that generate profits in a short time, while others take a long time in doing so and cannot therefore be considered as mechanisms for financing in the short term.

In addition, there are other commercial opportunities that can be important sources of resources such as the cases of storing grain and contract farming in Honduras.

In all these cases the support of second-order organizations is important, and this can be one of the fundamental roles of this type of organizations: support the CIALs in their efforts to become self-sufficient. It is no accident that in Honduras, where there are some solid ASOCIALs, some of the most interesting mechanisms are found. ASOCIAL support has been important for promoting savings in the CIALs and access to loans for production and commercial projects. Also in Honduras the production contracts were possible through a second-order organization although it was not an ASOCIAL. In Bolivia, the small business of native potatoes grew and was converted into an association that includes farmers outside the CIAL to take better advantage of their potential.

Some CIALs, whose cases have been documented in this research (Cock 2003b), have taken important steps toward their economic independence through self-financing. This inventory of mechanisms should serve to help promote the process of transition toward

self-sufficiency in these and in the rest of the CIALs by sharing the successful experiences in this field with all the groups.

### *Some final suggestions*

Some ideas that have arisen from this work for progressing in the process of self-financing of the CIALs are as follows:

- Know how much a CIAL costs. To achieve self-financing it is important to know the exact amount of resources necessary to generate. At present this information does not exist or it is not easy to access. There are cost studies of a CIAL trial, which is an important element for knowing exactly what needs to be financed.
- Many CIALs already generate resources through production projects or even in some of their trials. It is important to seek mechanisms to ensure that the CIALs reinvest those resources in their own activities.
- It is imperative that the CIALs have clear accounts: how much they spend and how much they produce. Although the groups should be doing this, it does not always happen.
- The CIAL petty cash funds help to have clear accounts besides providing other important services such as loans.
- Stop giving things away (seeds, inputs, tools, etc.). Other strategies can be used to support the CIALs, including loans with facilities, especially when there is a production focus.
- Convert production and commercial lots in mechanisms for institutionalized financing, have rules so that some of their profits can be used for self-financing (of future activities or for paying previous support).
- Promote the installation of new mechanisms, especially when there are innovative ideas that require initial capital. An initial fund is needed, one that preferably should be granted as a loan to generate commitment and responsibility in the group.
- It is necessary to seek the way in which the generated resources can be reinvested and not be distributed among the beneficiaries. This requires clear rules at the moment of providing the support; e.g., now that they are moving toward small businesses.
- Initiate the transition toward paid assistance. If the CIALs are to pay all their costs eventually, including the technical assistance provided by the entities that support them, there should be a gradual transition. They could pay a small quota for this service as a way to measure their willingness to pay for/finance this support.
- Be careful of mechanisms that distract from the main objectives; i.e., research. The mechanisms for self-financing should generate resources without demanding too much dedication by the farmers so that they do not take time that they would normally dedicate to their trials.
- The need for resources promotes the adoption of mechanisms. Having to pay loans, etc., the groups will surely begin to adopt and generate mechanisms for self-financing in order to be able to comply with those payments.

- It is important to generate basic norms to control the mechanisms for self-financing that are established. These regulations will facilitate the group's process of changing and adjusting according to their needs.

## References

Ashby, J.A.; Braun, A.R.; Gracia, T.; Guerrero, M.P.; Hernández, L.A.; Quirós, C.A.; Roa, J.I. 2003. La comunidad se organiza para hacer investigación. CIAT. Cali, 185p

Cock, J.C. 2003a. Ejemplos de movilización de recursos por parte de grupos locales en Centro y Sudamérica. Informe de trabajo IPRA. CIAT. Cali, 11p

Cock, J.C. 2003b. Inventario de mecanismos de autofinanciación en los Comités de Investigación Agrícola Local (CIAL). Documento de trabajo IPRA. CIAT. Cali.

Cock J.C. 2003c. Mecanismos de autofinanciación en CIALs: resultados de la encuesta. Informe de trabajo IPRA. CIAT. Cali, 10p

Fidamérica. 1996. Intercambio de experiencias sobre el papel de las organizaciones campesinas en el manejo de problemas y oportunidades de desarrollo agrícola. Available in: <http://www.fidamerica.org/actividades/conferencias/teindice/>

Fidamérica. 1999. De cara a la globalización: Organizaciones económicas en América Latina y el Caribe. Available in: <http://www.fidamerica.org/actividades/conferencias/oec/>

Fidamérica. 2000. Conferencia electrónica: Perspectivas y desafíos de la microempresa rural en América Latina y el Caribe. Available in: <http://www.fidamerica.org/microempresa/>

Wheatley, C. 2003. Sustaining development oriented civil society organizations in the rural South: Resource mobilization options, strategies, success factors and research issues. Documento de trabajo IPRA. CIAT. Cali, 47p

## **Integration of the CIALs in the management and conservation of natural resources in San Dionisio, Nicaragua**

**Responsible:** *Thomas Keller<sup>10</sup>, Clark Davis<sup>11</sup>, Jorge A. Beltrán<sup>12</sup>, Pedro Pablo Orozco<sup>13</sup>,  
Carlos A. Quirós<sup>14</sup>*

**Collaborators:** *Eduardo Hernández, Berta Jarquín, Sinforiano Hernández<sup>15</sup>*

### ***Highlights***

Two protocols have been established for doing research on NRM  
Participation of the municipality and the local organization Associations Campos Verdes in methodological process

### ***Objectives***

- Test the proposed methodology for integrating the CIALs in natural resource management (NRM) and conservation
- Take advantage of the CIALs organizational capacity and convening power in their communities
- Generate collective action to improve the level of well-being of the communities that have the CIALs in their own watershed.

### ***Justification***

The CIALs are community-based research services, whose members are elected by the community with the purpose of adapting or generating new agricultural technologies. Most Committees are located in the hillside zones, where they are faced with serious problems of erosion, deforestation and scarcity of water, above all in the summer. These problems lead to others such as scarcity of firewood for cooking, lack of drinking water and the loss of soil fertility, which in turn results in lower crop yields.

Therefore it is important to involve the CIALs in the topic of NRM and conservation, parallel to their research on crops for food security, in order to improve their level of well-being.

Taking advantage of autochthonous knowledge and the participatory methods and tools that the CIALs already have, the groups can work in a watershed to execute actions and do research on the conservation and improvement of their natural resources.

---

<sup>10</sup> Swiss College of Agriculture

<sup>11</sup> Research Assistant, PE-3, CIAT, Nicaragua

<sup>12</sup> Liaison officer, PE-3

<sup>13</sup> Research Assistant, PE-3, CIAT, Nicaragua

<sup>14</sup> Acting Project Manager, SN-3 PROJECT, CIAT, Colombia

<sup>15</sup> Technician, Nicaragua

## *Methodology*

- **Sector workshops**
  - ✓ Identify the partners in NRM in their watershed
  - ✓ Identify and prioritize the general issues in NRM (farmers)
- **Workshops of reflection**
  - ✓ Analyze problems and local alternatives/solutions
  - ✓ Establish mechanisms so that the CIALs and their partners work closely together in order to develop the NRM strategy
  - ✓ Create working groups among the members of the CIAL responsible for working in NRM
- **Exchange of experiences**
  - ✓ Sharing experiences, both locally and externally (Supermarket of Options for Hillside - SOL, visits) and training in selected topics
- **Preparation of action plans**
  - ✓ Establishment of research protocols
- **Implementation of NRM activities in the short and medium term**
- **Monitoring and evaluation**

## *Results*

The process of integrating the CIALs in NRM was begun in the months of April-May 2003 in the micro watershed of the Calico River, municipality of San Dionisio, Matagalpa Province. Three sectors were selected, each one with three CIALs and a paratechnician in charge (Table 1).

**Table 1. Sectors identified for developing the NRM process.**

El Zapote Stream: <u>Communities:</u> Zapote-Chile	Cálico River <u>Communities:</u> Carrizal, Zarzal and Corozo	La Calera Stream <u>Communities:</u> Las Mesas, Wibuse, El Jicaro
<u>CIALs:</u> El Jardín, Los Girasoles (women), Nueva Vida (El Chile)	<u>CIALs:</u> Santa Fé, Linda Vista, Manos Que Ayudan	<u>CIALs:</u> Productores Unidos, El Porvenir, Mujeres Experimentadas, San José

Tables 2 and 3 present the results in relation to assistance, identification of problems in NRM, identification of the social capital and general problems so that the producers become involved in NRM issues. The principal topics are loss of soil fertility, scarcity of firewood, low quantity and quality of water, and burning fields

**Table 2. Preliminary results of the sector workshops, San Dionisio, Matagalpa.**

	<b>Sector Zapote /Chile</b>	<b>Sector Carrizal/Zarzal/Corozo</b>	<b>Sector Mesas/Wibuse/Jicaro</b>
<b>Attendance (no. people)</b>	33 (43% women)	37 ( 54% women)	34 ( 35% women)
<b>Identification of topics</b>	<ul style="list-style-type: none"> <li>✓ Low quantity and quality of water</li> <li>✓ Low soil fertility</li> <li>✓ Scarcity of firewood</li> </ul>	<ul style="list-style-type: none"> <li>✓ Loss of soil fertility</li> <li>✓ Scarcity of firewood</li> <li>✓ Low quantity and quality water</li> <li>✓ Burning fields</li> </ul>	<ul style="list-style-type: none"> <li>✓ Low quantity and quality of water</li> <li>✓ Loss of soil fertility</li> <li>✓ Regular supply of firewood</li> </ul>
<b>Social capital</b>	The CIALs are advanced and experienced. People able to lead the work in NRM: Mariano López, José Luis Ochoa, Reyna Ochoa	CIALs are advanced and work well testing crops. People able to lead the work in NRM: José Luis Orozco, Salome Zeledón, Presentación Pérez	People able to lead the work in NRM: Franciso Martínez, Dionisio Blandino, Haydee Blandón, Bruno Salmerón
<b>Problems for NRM</b>	Producers mention the increase in population (about 4.2% yearly) and lack of land	Producers mention the increase in the population (about 4.2% yearly)	Lack of own plots; rapid changes in leased plots

**Table 3. Preliminary results of the reflection workshop, San Dionisio, Matagalpa.**

	<b>Sector Zapote /Chile</b>	<b>sector carrizal/Zarzal/Corozo</b>	<b>Sector Mesas/Wibuse/Jicaro</b>
<b>Attendance (no. people)</b>	36 (31% women)	44 ( 55% women)	36 ( 44% women)
<b>Prioritization of topics</b>	<p><u>Men</u>: water (12), firewood (7), soils (6)</p> <p><u>Women</u>: water (4), firewood (4), soils (3)</p> <ul style="list-style-type: none"> <li>✓ Low quantity and quality of water</li> <li>✓ Scarcity of firewood</li> <li>✓ Low soil fertility</li> </ul>	<p><u>Men</u>: soil (16), firewood (2), water (0)</p> <p><u>Women</u>: Soil (11), firewood (9), water (0)</p> <ul style="list-style-type: none"> <li>✓ Loss of soil fertility</li> <li>✓ Scarcity firewood</li> <li>✓ Low quantity and quality water</li> <li>✓ Burning fields</li> </ul>	<p><u>Men</u>: water (20), firewood (0), soil (0)</p> <p><u>Women</u>: Water (14), firewood (2), soil (0)</p> <ul style="list-style-type: none"> <li>✓ Low quantity and quality of water.</li> <li>✓ Regular availability of firewood</li> <li>✓ Loss of soil fertility</li> </ul>

	<b>Sector Zapote /Chile</b>	<b>sector Carrizal/Zarzal/Corozo</b>	<b>Sector Mesas/Wibuse/Jicaro</b>
<b>Problems for NRM</b>	Improvement in water not visible in short term; lack of local incentives for this area.	Long-term results; communities unwilling to implement recommendations.	The sources of water are located on the property of a large landholder.
<b>Planning</b>	<ul style="list-style-type: none"> <li>✓ Plant Calliandra (<i>C. calothyrsus</i>) to improve the supply of firewood.</li> <li>✓ Construct micro-dams to improve access to water.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Establish live and dead barriers to improve soil fertility.</li> <li>✓ Establish legume <i>Canavalia brasiliensis</i> in plots during the summer.</li> </ul>	<ul style="list-style-type: none"> <li>Plant Calliandra (<i>C. calothyrsus</i>) to improve supply of firewood.</li> <li>Construct micro-dams to improve access to water.</li> </ul>

At present, two research protocols have been developed and will be discussed with the different groups to begin work the second semester of 2003.

### ***Conclusions and recommendations***

This methodological process, which seeks to integrate the CIAL groups more actively in activities of NRM research, presents the following reflections:

- Hold the workshops in summer to permit better participation of farmers.
- The NRM workshops should held separately for men and women as the interests of the latter are primarily related to water and firewood.
- Working in smaller groups (12-15 people) results in more active participation.
- The prioritization and voting should not be public to prevent biases and dependency on other people.
- Carry out previous selection of people who have been identified to have interest in the topic.
- The meetings should be held with shorter spaces between them to ensure greater continuity.

## **Lulo project**

**Researchers:** *Fernando Hincapie<sup>16</sup>, Juan Jairo Ruiz<sup>17</sup>, Luis A. Hernández<sup>18</sup>, Zaida Lentini<sup>19</sup>, James Cock<sup>20</sup>, Carlos Quiros<sup>21</sup>*

**Collaborators:** *CORPOICA: Freddy Parra, Hidelbrando Achipri. Pescador: Pedro Nel Herrera, Hermes Vitelio Menza, Alejandro Murillo, Diomar Patiño, Wilson Moriones, Nelson Orozco, Leoncio Sanabria. Tierradentro: Humberto Inseca, Saul Salazar, Orlando Valverde, Jose Valverde, Eduard Salazar, Samir Salazar, Miguel Astudillo, Jison Salazar, Jose Honda, Félix Cuello*

### ***Introduction***

The Biotech team working on fruits, particularly with lulo (*Solanum quitoense*), also known as naranjilla or Quito orange, has been doing work on clonal multiplication with materials from the Andean Fruit Growing Center. The work began in 2001; and although the origin of the material was not known, the Center collected it from the farmers.

The Biotechnology Unit is interested in the conservation of materials (in vitro germplasm) and the regeneration of new plants. One year ago the first materials that maintained good characteristics after in vitro storage were taken to the field. The field results with the materials from the Andean Fruit Growing Center have been good in terms of production, early harvesting (2-3 months earlier than normal). Now the purpose of the participatory component is to identify a group of lulo producers interested in validating this method of clonal multiplication with their own varieties. They select their improved materials, give them to the Biotechnology Unit, and then evaluate the materials in the field, comparing them with their traditional method of planting seeds.

### ***Actors involved***

The lulo project involves producers with experience in the crop, buyers (Pescador and Tierradentro, Cauca, Colombia) and specialists in biotechnology and participatory research from CIAT.

### ***Justification***

The availability of seed of promising materials for the growers' production systems is one of the bottlenecks that prevents the better use of resources by the small farmers. All farmers are interested in obtaining improved varieties or clones for planting. For many years the producers have selected promising materials in their production areas,

---

<sup>16</sup> Research Assistant, SN-3 Project, CIAT, Colombia

<sup>17</sup> Research Assistant, SB-2 Project, CIAT, Colombia

<sup>18</sup> Research Associate I, SN-3 Project, CIAT, Colombia

<sup>19</sup> Senior Staff, SB-2 Project, CIAT, Colombia

<sup>20</sup> Project Manager, IP-06 Project, CIAT, Colombia

<sup>21</sup> Acting Project Manager SN-3 Project, CIAT, Colombia



collecting seeds of the best plants. In crops such as lulo, however, where the progenies differ substantially from each other and their progenitors, the process of obtaining varieties with the desired characteristics is slow and frequently does not work out. The strategy of joining forces between participatory research and biotechnology seeks to give the producers the necessary tools so that they select the improved materials and multiply them, obtaining progenies the same as the mother plants. Thus their selections pass rapidly to the multiplication stage and can be disseminated more quickly.

### ***Objectives***

- Obtain materials of lulo apt for the region according to the criteria of the producers themselves and buyers from Cauca
- Prove that clonal propagation<sup>22</sup> is viable for obtaining improved material
- Offer the producers the service of clonal multiplication for the regional materials selected by CIAT (work in Dapa) and by the farmers and buyers themselves
- Determine possible selection criteria of the producers and buyers in the selection of lulo cultivars through participatory techniques
- Develop mechanisms for establishing viable commercial systems for multiplying the selected materials
- Design procedures that combine clonal reproduction and participatory research for their application as a model in lulo and other fruits.

### ***Methodology***

- Motivate potential groups interested in the topic (informal presentation of the project, explaining the benefits and risks for producers and scientists involved in the project)
- Characterize the interest groups with whom the work would be done through a survey (a fundamental criterion in selecting the interest groups is their experience with the lulo crop)
- Explain the process of multiplying materials through meristem techniques (visit to Dapa, experimental fields and lab by the interested groups); and depending on the interest of the groups, they could evaluate some of the lulo materials that have been multiplied with these techniques.

---

<sup>22</sup> The system of clonal multiplication reproduces the same gene material as the mother plant selected and minimizes the transmission of systemic diseases.

- Select promising materials from the regional germplasm of lulo (application of participatory techniques such as open-ended evaluations, definition of criteria, grading and reasons for same, preference ranking, etc.).
- Multiply materials selected through biotech techniques (meristem technique).
- Plant promising materials coming from clonal multiplication according to the producers and buyers
- Conduct participatory evaluation of the selected materials at two locations in Cauca (Tierradentro and Pescador; at this stage establish linkages with institutions such as CORPOICA-Cauca)
- Develop mechanisms to establish viable commercial systems for the multiplication of the selected materials (nurseries interested in the multiplication of materials or the possibility of establishing systems of propagation at the local level identified)

### ***Procedure***

#### ***Criteria for selecting interest groups***

- Experience with the lulo crop (local experts)
- Detailed level of observation from the experienced producers
- Producers known their community as innovators or experimenters (perception of probabilities of change in the local practices)
- Skills for communicating with the researchers (ease of expression)
- Socioeconomic resources
  - Land tenure
  - Farm size
- Objectives of the producers
  - Commercial vs. subsistence
  - Improve crop
- Localization
  - Distance to the market
  - Agro ecological zone (upper zone, lower zone, etc.)

#### ***Participatory diagnosis limited to the lulo crop***

Meeting to speak about the lulo crop, problems, causes and possible solutions.

#### ***Open-ended evaluations***

Method for probing and recording the spontaneous reactions of the producers to the technology (varieties of lulo) without using direct questions.

Techniques used by the interviewer to stimulate the communication of ideas from the producer in open-ended evaluations.

Describe what would be an variety ideal for you.

What do you think of this variety?

- Could you explain that to me?
- Tell me more about that.
- Is that an advantage or disadvantage for you?
- Could you group some of these? How would you classify them?
  - Why do you put these in a group and those no?

### ***Preliminary results***

*Results of the lulo growers visit to CIAT and the experimental trial of lulos in Dapa (June 3).*

- *Exploration of expectations of lulo producers from Pescador and Tierradentro.* The expectations of the lulo producers can be grouped into two areas: (1) pests and diseases and (2) seed quality. The expectations of the producers were compared with those foreseen in the project in order to clarify them and integrate goals. In terms of the expectations designed into the project, the possibility of obtaining “clean” (strong) seeds using the technology being tested was explained, as well as how this could be used at the field level so that the producers learn how to apply it and manage it in the future. The possibility of the producers themselves looking for potentially good materials of lulo in terms of pest resistance and/or diseases and to multiply them using the technology being tested was also explored. With the adaptation and adoption of the technology in case of being successful, they could be applied to other crops of interest to the producers. The result of this exercise indicated a good correlation between the expectations of the producers and those in the project.
- *Results of the survey about experiences with lulo.* Based on the questions (1) how many years have you worked with the lulo crop?, (2) about how many lulo plants do you have?, (3) why are you planting lulo?, (4) if their objective in planting lulo is commercial, at what distance are they from the market?, twenty people involved in the crop responded as follows:
  - ✓ Some have experience of only 1 year; others up to 15 years. Of the 20 growers, 50% have experimented for periods of 2-3 years.
  - ✓ The producers have from 80-5500 plants; 50% grow from 1200-3000 plants.
  - ✓ The majority of the producers sell their fruit for the fresh markets, far from their production areas; they do it through middlemen.
- *Criteria of producers expressed about a lulo crop (13 months after planting, Dapa, 1600 m alt.).* For this part of the experience, the technique of “open interview” was used, in which the producers express their opinions about two lulo cultivars, freely and spontaneously. The possible criteria are the result of the exposure of the farmers

to the characteristics of these two varieties. For the exercise, the group was divided into the producers coming from Tierradentro and Pescador, assuming there would be differences of opinion according to different agroclimatic and marketing conditions.

Table 1 shows the possible selection criteria that were mentioned by the two groups. In some cases the criteria differed between the two groups (letters in bold case), possibly due to agroclimatic conditions (e.g., leaf size) and types of market (e.g., size of the fruit).

**Table 1. Possible selection criteria mentioned by two groups of producers (Tierradentro and Pescador, Cauca).**

***Possible selection criteria***

➤ ***“Size” referred to as:***

- ⇒ The leaf
- ✓ The bigger the leaf area, the better the lulo plant (**producers from Tierradentro**)
- ✓ A small leaf area favors circulation of the air, there are fewer diseases, and better advantage is taken of the space available for planting (**producers from Pescador**)
  
- ⇒ The fruit
- ✓ Large fruits are better accepted (**producers from Tierradentro**).
- ✓ Small fruits can be sold in the marketplace, but through middlemen. The large fruit can be sold in chain stores, but they require fixed production quotas (**producers from Pescador**).

➤ ***“Color” referred to as:***

- ⇒ The leaf: Should be dark green and shiny.
- ⇒ Fruit: When fully ripe, it should have a deep orange color.
- ⇒ Pulp from the fruit: Consumers prefer the green color (in the juice).

➤ ***“Thickness” referred to as:***

- ⇒ Stalk: The thickness of the stalk is directly related to good fruit setting.

➤ ***“Fruit setting” or production***

- ⇒ Fruits: 300-400 lulos/plant, 6-7 lulos= 1 kg, 50 kg = one plant.

➤ ***“Thorns”***

Plants with thorns are preferred for their production and fruits that tolerate postharvest management

### ***Definition of an ideal plant (producers from Tierradentro)***

- Healthy plants (free of diseases and pests)
- Large fruits, deep orange in color when they are ripe
- Good production (300-400 lulos per plant, 6-7 lulos per kg).

### ***Visit to lulo farmers***

Taking into account the field day in DAPA with lulo farmers from Pescador and Tierradentro and the last meeting (01-07-03, Annex 1), where it was agreed to begin the process of selecting the farmers who showed interest in participating in the project (initially Pescador), some points of reference for beginning the fieldwork were established.

The purpose of the first visit to the field (Pescador, 22 August) was to identify from among the group of 4 farmers selected from the survey, who are currently growing lulo (Annex 2), those who are still interested in participating in the project and try to find at least 6 farmers more in order to have a group of 10 farmers.

Those who participated in the field visit were Fernando Hincapié, Leonel Rosero and Juan Jairo Ruiz from CIAT, and the farmers Pedro Nel Herrera, Hermes Vitelio Menza and Diomar Patiño.

The 4 farmers that were selected for their experience in the crop were visited, and their interest in participating in the project was reaffirmed. A survey was also conducted in order to obtain more detailed information of each farm and some of the activities that they carry out (Annex 3). During this visit, a visit was made to the crop of Diomar Patiño, which has many problems (principally diseases such as sclerotinia and anthracnose).

Finally, the farmers were asked to get together other farmers from the region who also grow lulo and that have shown interest in participating, to attend a meeting programmed for 25-07, where all the farmers will be informed about the objective of the project, share experiences with respect to crop management and look at the current importance of lulo in the region.

### ***Second visit to field (Pescador, 25 August)***

The purpose was to identify new farmers to expand the group working on the selection of new clones, learn of the experiences of each with respect to crop management and evaluate the current situation of the crop in the region.

Those who participated in the field visit were Fernando Hincapié and Juan Jairo Ruiz from CIAT, and the farmers Pedro Nel Herrera, Hermes Vitelio Menza, Diomar Patiño, Wilson and Manuel Moriones, Nelson Orozco, Leoncio and Urbano Sanabrio, and Nacho Herrera.

Four new farmers interested in participating in the project were identified, the management criteria of each of the farmers were unified based on the survey (Annex 3), and the person with the most knowledge and good crop management was detected: Pedro Nel Herrera (crop in excellent health conditions).

The rest of the farmers have many problems (primarily diseases) and are not familiar with the management practices being used by Pedro Nel. Pedro is open to transmitting his knowledge to the rest of the farmers, and we consider his farm to be a good place for the observation plots.

Then the work plan was developed with the group. The first thing to be done is to begin the selection of the improved materials from each farm. For this purpose, a field visit was programmed (07-08). In the upper zone, the tour will cover each of the where the farmers have previously identified their improved materials. Then each of them will present before the whole group the criteria he used to select these outstanding clones.

A brief diagnosis of the current state of lulo in the region and the importance that it has for each farmer, classifying the crops that they have in the high zone of Pescador as well as in the lower zone, and their priority with respect to income generated.

The farmers' interest in lulo is due to the fact that it is a crop in high demand and a very good market; besides it can be said that it guarantees a return on the investment.

In the lower zone (Crucero de Pescador) the main cash crops are coffee, common beans (*Phaseolus vulgaris*) and cassava. Very few producers are cultivating lulo, partly because they believe that the conditions are not the best for the crop and partly because they do not know about the crop. Lulo is seen as a cash-crop option.

In the upper zone (Buena Vista), the main cash crops are beans and blackberries, just as in the lower zone, lulo is seen as a good cash-crop option.

The interest of lulo growers is mostly related to the good price it brings on the market, the production is sold easily, and it is a "generous" plant with respect to fruit setting and production.

Some of the problems encountered are that the lulo producers are very far from the markets, which affects the price they get for the fruit, and transportation to the markets is costly and difficult.

### ***Third visit to field (Pescador, 07 August)***

- Each of the farms was visited, and the two best lulo plants were selected (taking into account the farmers' priorities).
- The 5 best materials of the whole zone were selected, taking into account the farmers' observations and criteria, recording the characteristics of each material (health, productivity, plant habit, quality of fruit, etc.).

- Two observation zones (one in the lower zone at 1650 m alt. and the other in the higher zone at 1900 m alt.) were selected, where the plots for evaluating the plants will be located.
- Each observation lot will have 3 treatments: plants propagated from seeds, from clones done by the farmers and micro propagated.
- Each treatment will have about 20 plants, for a total of 60 plants. If 5 clones are selected in the zone of Pescador, there should be 300 plants. As there are 2 zones, this means 600 plants for all the treatments and clones.
- Considering the introduction of the farmers' clones to CIAT, close attention will be paid to the methodologies of clonal propagation that some of the farmers like Pedro Nel Herrera use on their farms. The purpose of this is to estimate the time required to collect the materials in the field, how long they need in the glasshouse and later in vitro.
- Establish the planting dates in relation to the delivery of the in vitro materials.

#### ***Fourth visit to field (Tierradentro 9-12 September)***

Visit to the lulo producers who went to Dapa in order to see their crops, identify those interested in participating in the project, and select materials for delivery to CIAT for the process of clonal multiplication. The principal crops of the region are coffee and beans, given their importance as cash crops, the same as for the zone of Pescador. Lulo is attractive because of its good price on the market, and the production is sold easily. As for the problems faced by the producers, they are similar to the zone of Pescador, the markets are far away from the farms, they do not have much experience in crop management, and they do not know how to control some diseases and pests.

Despite the fact that lulo is an attractive crop because the fruit has a good demand on the market and brings a good price, the number of lulo producers in the regions visited is low. Many farmers begin working with this crop; but when they face a problem such as a disease or pest, they abandon it. This can be explained in terms of the little knowledge and technical help available with respect to the management of this crop. Another reason that should be borne in mind is that the producers generally have other well-established crops that generate incomes and that have to be taken care of as they are the basis of their economies. Thus they do not dedicate sufficient time to lulo, which in the first days needs a certain amount of dedication. Another factor that was observed and that can have incidence on the deterioration of the lulo crop is that the production plots are generally located far from the farms and are of difficult access, making it problematical to guarantee the appropriate care of the crop.

It was also observed that there are some producers with very good management and knowledge of the lulo crop, only a few kilometers from very deteriorated crops, whose owners do not have the knowledge or the technical assistance to make their crops prosper. Consequently, a compilation of the best practices for managing the lulo crop at the local level was proposed so that the producers who want to work with lulo can benefit from the experience of the producers who have the local knowledge for growing a successful crop.

### *Commitments acquired*

With the producers from Pescador, the following commitments were acquired, once the materials to be multiplied have been identified:

- Planting of cuttings or shoots of the plant selected for clonal multiplication in the week from 11-15 August
- Delivery of at least 10 plants, daughters of the plant selected for multiplication in the week from 6-10 October
- Delivery of cloned material for establishing observation plots from February and March 2004
- Work of observation, monitoring and evaluation of clonal and traditional materials for the next two years

With the producers from Tierradentro, similar commitments were established:

- Planting of cuttings or shoots of the plant selected for clonal multiplication in the week from 15-19 September
- Delivery of at least 10 plants, daughters of the plant selected for multiplication in the week from 17-21 November
- Delivery of cloned material for establishing observation plots from March-April 2004
- Work of observation, monitoring and evaluation of clonal and traditional materials for the next two years



## ***Annex 1***

### ***Zone: Pescador***

No. of farmers: 8

*Experience:* 4 without experience in lulo; the other 4 with experience ranging from 2-9 years

No. of plants: 200-1000

- Based on these results, it was decided to eliminate the 4 farmers that no have experience in lulo and have not planted lulo.
- Juan Jairo Ruíz will prepare a list by zone of the farmers that participated in the survey, tabulating the results of the survey, their selection for the study and confirming their interest in participating in the project.
- Fernando Hincapié will contact ASOBESURCA, to communicate the Project's interest in continuing the follow-up from the project and request their help in identifying other farmers in the zone of Pescador, given that half the farmers who attended the workshop at CIAT did not have experience in lulo.
- Fernando Hincapié and Juan Jairo Ruíz, will make a preliminary visit next week to the 4 farmers selected in Pescador according the survey to confirm their interest in participating in the project and begin gathering the preliminary data on productivity, pests and diseases, know the farm and obtain a better idea of the crops, and request information about other possible farmers with experience in lulo that could be candidates for including in the project.
- Fernando Hincapié will contact Freddy Parra (CORPOICA, Popayán), give him the list of farmers from Tierradentro and see whether he can collaborate by consulting the farmers about their interest in participating in the project and then plan a visit to the interested farmers, and begin a process similar to that of Pescador.
- A survey will also be developed for use in a group meeting by zone, where the group of farmers involved in the project participate; should be designed for the follow-up of the project.

It was suggested that instead of asking each farmer to select his best clone to be multiplied in vitro, they should form two work teams (one per zone), and that each team select the best 4-5 clones available among the group of participating farmers. Thus, there would be the best 4-5 clones by zone. These clones would be the ones to be multiplied in vitro. Each team would select 3-4 locations in each zone (replications) for the comparative trial of the in vitro material vs seed from each clone. This would facilitate the standardization of the management of the trial in the different replications, the costs of maintaining the trials would be less, and the risk would be shared among the farmers. This pre-trial could be the beginning of the procedure to be used for establishing the observation lots for when they are going to introduce the new germplasm. Of course, in order to establish this scheme, the farmers would have to be willing to share their germplasm. This could be explored in the preliminary visits.

**Annex 2****List for classifying and selecting lulo growers****Zone: Pescador**

<b>Name</b>	<b>Experience (yr)</b>	<b>No. Plants</b>	<b>Selection Based on Survey</b>	<b>Interested in Participating</b>
Pedro Nel Herrera	15	1000	X	yes
Hermes Vitelio Menza	15	900	X	yes
Alejandro Murillo C.	2	700	X	yes
Diomar Patiño	9	260	X	yes
Genit Almendra	0	0		
David R. Trochez	0	0		
James Bastos	0	0		
Angel Daniel Paz	0	0		
<b>New farmers</b>				
Wilson Moriones			No	yes
Manuel Moriones			No	yes
Nelson Orozco			No	yes
Leoncio Sanabria			No	yes
Urbano Sanabria			No	yes
Nacho Herrera			No	yes

### **Annex 3**

#### **Criteria for conducting survey of lulo farmers (3 July)**

- What is the fruit setting or production of your lulo plantation?
- What is the planting distance that they use?
- Describe your main cultural practices (e.g., fertilization, fumigation).
- What are the principal pests? (pests and diseases that limit the productivity and the crop management)
- What other factors limit the lulo production on your farm?
- What is the average and maximum height that these plants reach?
- How many harvests of lulo do you get a year?
- With what frequency do you plant new lulo plants and how many?
- Are your new plants from seeds or cuttings of the best clones?
- Do you plant other plants in association with lulo?