

RII

~~Rural Innovation Institute~~

Rural Entrepreneurs Working
To Compete for a Better Future



The Rural Innovation Institute

Annual Report

2003

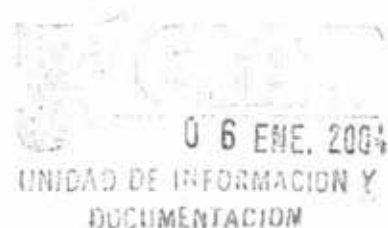


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The Rural Innovation Institute

1. OBJECTIVES

The Rural Innovation Institute endeavors to improve rural livelihoods by working with clients and associates to improve their innovativeness, defined as their competitiveness, capacity to innovate and access to information including the best resulting blends of scientific and local knowledge. The Institute works primarily on behalf of small-scale, farm producers, agro-enterprises and the agencies that serve them, including private, public and not-for-profit organizations. Box 1 gives examples of expected results.

Four important objectives discussed below cut across all the work of the Institute and integrate research and development carried out in three internal projects—agroenterprise development; participatory methods (IPRA) and information for development (INFOCOM). The Institute also hosts the CGIAR Program on Participatory research and Gender Analysis (PRGA). Each internal project has a project manager, logframe and work plan and all fundraising and new initiatives are done through the projects. These complement each other and carry out numerous research and development activities in close coordination with other projects of CIAT as well as with outside stakeholders. The common objectives are described in detail below.

Box 1 Roadmap to Developing Capacity to Innovate

Source: Rural Innovation Working Group December 2002

Producer organizations and rural communities with capacity to innovate will have:

1. An assessment of their asset base to identify market opportunities, entry points for technical innovation and leverage for organizational change.
2. An action plan for experimenting with novel ways to develop the combination of products and services needed to establish a food-secure and competitive market position *beneficial for all members*
3. A plan for experimentation with innovations for improving their assets (human, financial, social, natural and physical) to support and sustain the desired food and income generation.
4. A Learning Alliance with key partners to support the interaction of local experimentation and knowledge sharing with outside resources
5. Experimentation in a resource-to-consumption framework to test proposed innovations
6. A monitoring and evaluation process
7. A collective organization platform (e.g. integrated production project, agro-enterprise, telecentre, farmer research committee, watershed association, cooperative etc) to run the innovation process.
8. A plan for scaling up

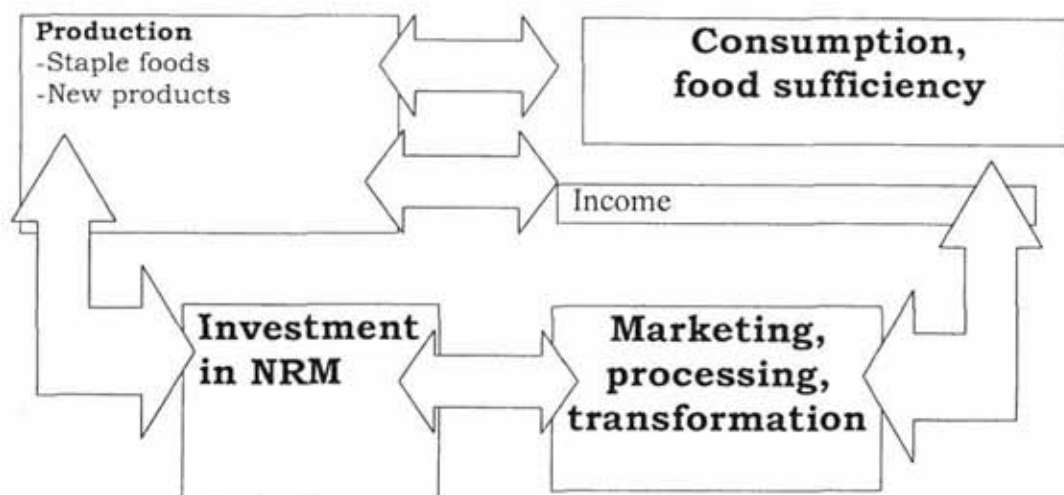


Figure 1. Improving Competitiveness through the Resource-to-Consumption Framework

Improve Competitiveness

The RII assists its clients to develop a fit between their local resources and a unique competitive mix of products and services. Market research, technical assistance, farmer experimentation, capacity development and participatory research are designed to provide rural producers and entrepreneurs with practical steps that enable them to design the products and processes required for them to be competitive.

RII works to develop local capacity to combine improvement in the production and processing of staple food crops with a competitive mix of new products. Market opportunities for different value or commodity chains are analyzed to find high potential options for increasing income while making sure there is enough food. To do this, RII helps farmers to experiment with new crops and products that have a well-identified market opportunity. To improve competitiveness, RII teaches the skills needed to design agro-enterprise projects that enable farmers to capture a larger share of the value added by new post harvest processes, packaging or marketing.

This approach to improving competitiveness is summarized as a “resource to consumption” framework illustrated in Figure 1. Finding ways for each day of labor to produce more food or income is central to the approach. Especial attention goes to generating the additional income needed to invest in improving soil, water or other natural resources needed to sustain competitiveness. RII provides existing community organizations and agencies with advice and training in new ways of organizing to be more competitive-- to conduct local experimentation, to develop small-scale agro-enterprises and to use the information highway.

Through Learning Alliances Build Capacity to Innovate

Developing an enduring capacity to innovate is vital for staying competitive. RII's approach is to provide training and research in combination, through a relationship with a client or group of clients called a "Learning Alliance." Participants in a Learning Alliance simultaneously monitor, evaluate and learn quickly together from the training and research experience to derive lessons that will enable the results to reach more people, more quickly. To support learning how to innovate, the RII teaches the skills and knowledge needed to search for and identify new markets and products as well as new production or marketing processes. These skills include knowing HOW to find the information, expertise and financing needed, WHERE to find it and WHO to go to for help.

Skills for innovation include knowing how to experiment and evaluate with new options to see if they will prove successful in local conditions. New technologies are tested and introduced for combining staple food crops with a competitive mix of new products. Once new options have been identified, "pilot" or trial production and marketing projects are established with small groups.

Learning quickly from successes as well as the mistakes we make in these first trial projects is essential so RII teaches clients how to run their own monitoring and evaluation process. This helps local people and the agencies who support them to expand trials quickly to benefit larger numbers of people. But innovation doesn't stop with the first success. RRI makes sure clients know how to stay competitive by keeping up a vigorous cycle of learning, experimentation, problem solving and innovation with new markets, products and processes.

Promote Knowledge-sharing, Information and Communication

Successful entrepreneurs stay competitive by constantly exchanging experience and sharing information both locally and with the wider world. RII works to foster information exchange and learning to support local innovation and promote competitiveness. To do this, RII provides training programs aimed at developing local capacity for information discovery and sharing valuable local content on the World Wide Web linked to radio and other communication channels. These programs typically work with community *telecenters*, local information systems and community-based oral or other kinds of communications. RII complements these with training in the use of computer-based, decision-support tools designed to enable agencies supporting farming communities and rural entrepreneurs to use the vast store of biological and economic information that otherwise is inaccessible to them.

Blend scientific and local knowledge

Competitiveness based on developing a fit between local resources and a unique mix of products and services often builds on a blend of scientific and local knowledge. A good example is the new market opportunities that can develop for small farmers once their knowledge about the taste, storage qualities and growth habits of a local fruit variety are combined with scientific knowledge about how to characterise the fruit's vitamin C content, improve its shelf life and enhance its disease resistance. The RII is a gateway for small producers and rural entrepreneurs to access the scientific expertise of CIAT and its Science Park, and a wide diversity of other partners for this purpose. Once clients have identified high potential options with promising markets and a good fit with local resources that may need blending through scientific research, the RII assists them to build the partnerships required to do this.

2 Highlights in 2002

Sustainable rural livelihoods comprise the core of CIAT's current strategic plan. To achieve them depends on three essential conditions: agricultural competitiveness, agro ecosystem health, and rural innovation. The term rural innovation describes the process whereby various stakeholders generate, adapt or adopt novel ideas, approaches, technologies or ways of organizing. Rural Innovation occurs when stakeholders put these into widespread use to improve the production of food and environmental services through farm and non-farm activities, so that the rural sector becomes competitive in a sustainable manner.

The Rural Innovation Institute's (RII) research on how to improve innovation systems has consolidated in 2003 through several important *Learning Alliances* which are agreements with development agencies to conduct joint action research on how to accelerate innovation, including Catholic Relief Services; IDRC, Canada; the W.K.Kellogg Foundation; IFAD and GFAR; the Institute of Rural Reconstruction; the von Humboldt Institute, and Colombia's Ministry of Agriculture. Originating in the AgroEnterprise project, learning Alliances are rapidly integrating expertise from participatory research and rural knowledge systems, thereby proving an effective instrument for self-organizing integration across projects within the Institute. In all *Learning Alliances* the stakeholders are funding RII to participate in capacity building and action research. Strategic importance for *Learning Alliances* was gained at the CGIAR Annual General meeting in October, 2003 with the recognition of *Learning Alliances* as a distinctive feature of CIAT's approach to Institutional Learning and Change, ILAC, a new initiative which is financing the RII's involvement in generating and ILAC case study. ILAC is promoted by the Rockefeller Foundation, with support from several other donors, including IFAD and BMZ Germany, and several IARCs.

One of the most important results CIAT expects to achieve from science-enhanced rural innovation is an improvement in the capacity of rural communities to control the use of science and technology for improving their livelihoods. In 2003 significant progress was made in expanding further development of approaches to scaling up participatory monitoring and evaluation approaches in projects linking farmers to markets, collectively known as "enabling innovation" in East Africa, Central America and Bolivia and supported by the Kellogg Foundation, DFID United Kingdom, the Rockefeller Foundation and the Belgian government.

In the area of knowledge management and information for development, CIAT was offered the opportunity to write the proposal for, and if successful, implement a segment of the CGIAR System wide IT and KM Program. This is an important step forward in gaining recognition for the contribution CIAT's Communications, Information Services and Documentation team has been making to the CGIAR over the past few years. A central role in Knowledge Management positions CIAT to generate strategic research proposals and projects in this new area.

3. Research on accelerating innovation

The Institute's efforts to improve innovativeness with its clients draw on its investment in learning from research carried out elsewhere, as well as its own internal research on the determinants of successful innovation and factors that accelerate or hinder innovation. The working hypotheses which guide rural innovation research are depicted in the form of a path diagram in Figure 2. Determinants of competitiveness in the first column are crucial exogenous variables which set the scene and are defining conditions for whether rural innovation will occur and to what extent it will succeed. CIAT's research outputs (or results) are designed to change some key aspects—but not all, of the determinants of rural innovation: these are laid out in the second column. Four important outcomes have to occur for beneficiaries in a time frame of 3-6 years, listed in the third column. If achieved, these outcomes lead to expected longer-term impact over 7-20 years, shown in the final column.

The Institute is building a database of Innovation Case Studies which are used first by the Learning Alliances which generate the cases, and will be subsequently used for meta-analysis to be conducted cooperatively across a wide array of projects and initiatives to test the working hypotheses laid out in the causal model. Case study partners will want to adapt the generic causal model, roadmap and indicators of success to their own particular experience and at the same time, the meta-analysis will maintain some common variables and indicators for comparative analysis.

4. Toolbox

An ongoing inventory of the numerous approaches and methods that are used within CIAT for rural innovation-related research provides input to a web-based inventory of methods, approaches and tools for which the documentation is being assembled with all the contributors. This will enable knowledge-sharing within the CIAT rural innovation community and will provide a vehicle for exchange of different approaches which in the normal course of events, do not rub shoulders.

4. - A platform for pro-poor innovation policy dialogue	4. Pro-poor rural innovation policy formation* is being influenced by results of RII research on how to improve competitiveness of rural poor	Project Reports	Donor support for policy dialogue
ACTIVITIES/PROJECTS 1. Agroenterprise Project Work plans 2. Participatory Research Project Work plans 3. Information for Development Work plans 4. PRGA Workplan	See Project Annual Reports	See Project Annual Reports	See Project Annual Reports

DETERMINANTS OF	CIAT OUTPUTS	OUTCOMES FOR	IMPACT
COMPETITIVENESS			BENEFICIARIES
Opportunity Assessment	-Resource-to-Consumption Framework	PM&E	Impact Assessment

-----Learning Alliances-----
 Innovation Case Studies

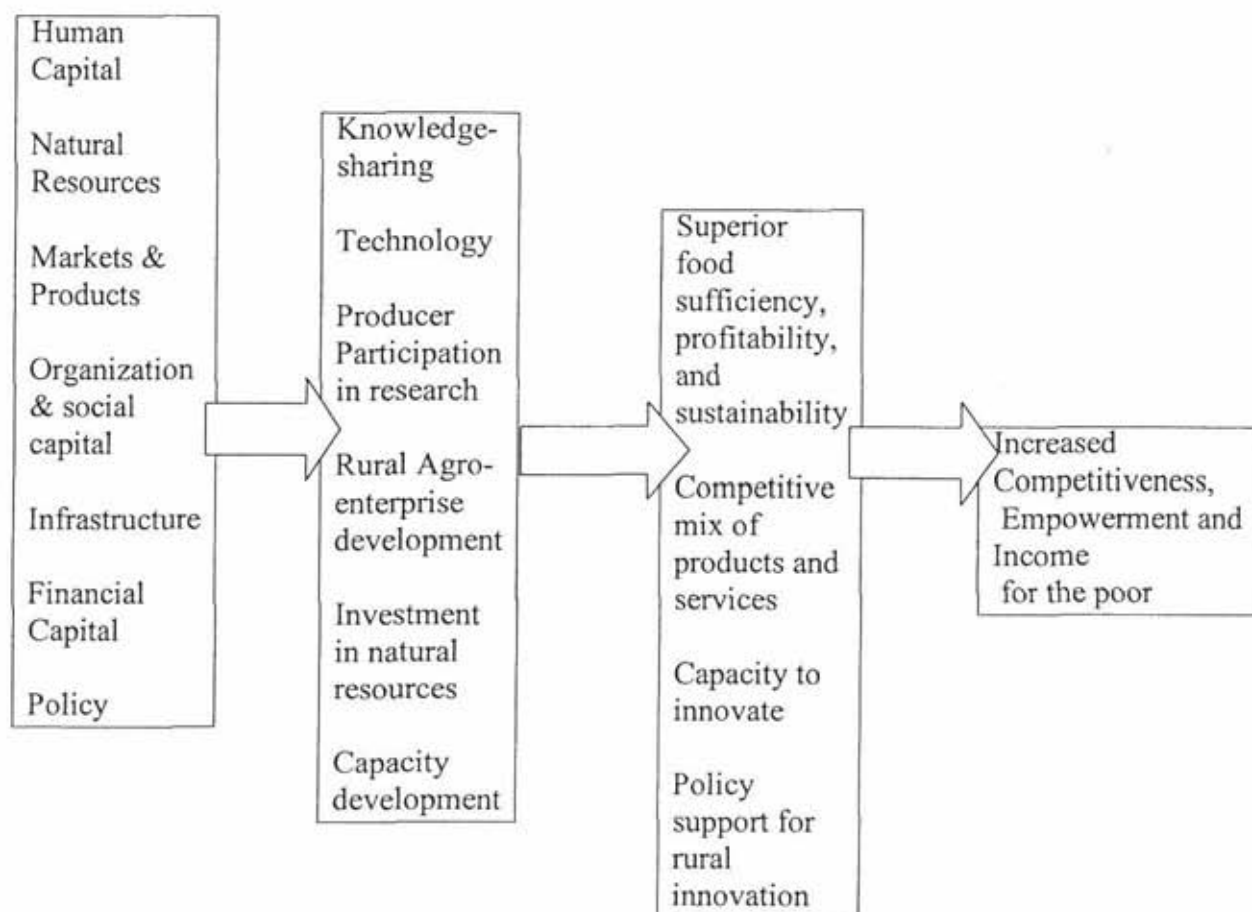


Figure 2. Causal model of Rural Innovation

5. Logframes

CIAT has well-elaborated logframes for each of the three projects which are a pivot of rural innovation. The project outputs lead to achieving the purpose and goal of the Institute. Rural Innovation Project Purposes (SN2, SN3 and SN4 in the mid-term plan) appear in the logframe as Institute Outputs. Rural Innovation Program areas appear in the log frame performance indicators

RURAL INNOVATION INSTITUTE LOG FRAME

NARRATIVE SUMMARY	VERIFYABLE INDICATORS	METHODS OF VERIFICATION	CRITICAL ASSUMPTIONS
<p>GOAL Contribute to promoting the competitiveness of small producers by enhancing their capacity for innovation using applications of scientific and lay knowledge that enable rural innovators to work better for the poor</p>	<p>- RII stakeholders, their partners, small producers and their organizations see the Institute as providing a unique and valuable service that has improved their innovativeness, competitiveness and income.</p>	<p>-Beneficiary assessments - Participatory monitoring and evaluation</p>	<p>- Small producers can improve their competitiveness by building a capacity for continuous innovation -Favorable policy environment for small producers -RII stakeholders are convinced by CIAT's reputation and want to partner with the RII</p>
<p>PURPOSE To develop and scale up capacity for innovation among organizations of small producers serving low-income rural communities, indigenous people and women.</p>	<p>- Innovation Case studies -Learning Alliances At least three examples of large scale Rural Innovation are providing working models of approaches and impacts by 2006 using a common set of indicators of success</p>	<p>- Impact assessment studies - Participatory monitoring and evaluation reports - Innovation Case Study reports - Learning Alliance reports</p>	<p>-Donor, Board of Trustees and Management support - CIAT projects and scientists have rural innovation as a goal and collaborate in and share rural innovation approaches center-wide</p>
<p>OUTPUTS 1. -- SN1: methods and tools for use by local practitioners in the participatory design and execution of decentralized rural agroenterprise development schemes aimed at diversifying and adding value to the production of smallholders</p>	<p>1.Methods, tools and institutional models for rural agroenterprise development broadly adapted and used by partners and beneficiary groups for collective organization to scale up technology change</p>	<p>Reports and project documents of our partner institutions.</p>	<p>Political and institutional support for sustainable rural and agricultural development at the reference sites and targeted countries is maintained. Natural disasters or civil strife do not impede progress toward the project's goal</p>

<p>2. - SN3: Participatory research principles, approaches and analytical tools, indigenous knowledge and organizational principles that strengthen the capacity of R&D institutions to respond to the demands of stakeholder groups for improved well-being and agro-ecosystem health</p>	<p>2. Application of participatory methods, analytical tools and organizational principles by R&D organizations that lead to the incorporation of the farmers' and others end-users' IAM-related needs</p> <ul style="list-style-type: none"> - Use of Project products at additional reference sites in two agro ecosystems (hillsides and forest margins) of CIAT's mandate in 5 years - Use of Project products by a minimum of 3 institutions outside the LAC region by the end of the 5th year <p>Improvement in the well being of the end-users at the respective reference sites</p>	<p>Projects, plans and reports of public sector entities, donors, the NGOs, grassroots organizations, second-order organizations at the reference sites and in the agro ecosystems of CIAT's mandate, which refer to the use of the Project's products</p>	<p>Institutions committed to the principles of PR</p> <ul style="list-style-type: none"> - Stable institutional leadership - Committed communities - Favorable environmental and agrarian policies - Absence of social conflict at the reference sites - Data available from the reference sites <p>Availability of information from partners</p>
<p>3. - SN4: Strengthened decision-making capacity of rural communities and R&D organizations to obtain, generate and share information and knowledge with the aid of modern information and communication technologies</p>	<p>3. Improved knowledge-sharing* information systems, methods and approaches are being incorporated by partners' programs and organizations to better meet local demand for information and support rural innovation</p>	<ul style="list-style-type: none"> - On-line evaluation of e-learning programs. - Training tools available in print form and on CD-ROM. - Locally developed information systems available on the World Wide Web. - Consultancy reports and project information on the Web and in print form. <p>Conference papers, journal articles, and technical reports on the performance and impact of approaches developed by the project.</p>	<ul style="list-style-type: none"> - Public and private telecommunications agencies support initiatives to create affordable, reliable Internet access in remote rural areas. - National and local organizations can generate resources through information services that enable them to sustain these services. <p>National and local organizations gain credibility in rural communities as reliable providers of useful Web-based information services.</p>

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PROJECT SN-1
Rural Agroenterprise
Development Project

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PREFACE

Sustainable rural livelihoods constitute the core of CIAT's vision for the future. Improved livelihoods for the poor come through the deployment of their diverse assets in different sectors, and for rural people this means non-farm as well as farm activities. While improvements in agriculture alone cannot achieve sustainable livelihoods for the rural poor, agriculture is central to the livelihoods of most of the world's rural poor, and most of the world's poor are rural. CIAT's niche in achieving sustainable rural livelihoods consists of helping attain three critical conditions: (1) Competitive Agriculture, (2) Agro-ecosystem Health, and (3) Rural Capacity to Innovate.

Within this vision and sought-after contribution of CIAT to achieving sustainable rural livelihoods, the Rural Agro-enterprise Development Project (RAeD) is grouped with two other CIAT projects—Participatory Research, and Information and Communication for Development—as being core to CIAT's initiative on developing the innovative capacity of rural communities. The capacity of rural communities, together with their support institutions, to be able to identify and develop economic activities that diversify and add value to smallholder production, is considered a critical component of a strategy for achieving rural livelihoods that are economically, socially, and environmentally sustainable.

During 2003, the project consolidated its strategy of decentralisation with the initiation of new projects in SE Asia (Lao PDR and Vietnam) and Central America (Honduras, Nicaragua, El Salvador and Guatemala). In E and S Africa, activities have been expanded within the regional Enabling Rural Innovations concept adopted by the Rural Innovations Institute in that continent and the strengthening of an alliance with the Catholic Relief Service, which is covering 9 countries. In the Andean region, new alliances are being forged with CONDESAN-CIP and the Catholic Relief Services, among others.

In 2003, Dai Peters, Project Leader, and John Connell, Community Development Specialist joined the team in SE Asia, stationed in Hanoi and Vientiane respectively. Rupert Best, present Project Manager, will be leaving in 2004 and the process of selection of a person to take this position is underway.

Project description: Rural Agro-enterprise Development

Objective: To develop methods, tools and information for use by local practitioners in the participatory design and execution of development schemes for decentralized rural agroenterprise by which the production of smallholders can be diversified and value-added.

Outputs:

1. Methods for identifying and developing viable market opportunities that incorporate small-scale farmer selection criteria.
2. Methods and tools for developing local capacity to select and develop postharvest processing and handling technologies.
3. Options and tools for integrating collective action with business organization to establish sustainable enterprises.
4. Decision-making tools and institutional models for strengthening rural agroenterprises and complementary support services.
5. Strong partnerships established for research, training and diffusion of the results of the project.

Gains: Rural populations in CA, Andean Region, East and Southern Africa, and Southeast Asia enhance their capacity to establish small-scale agroenterprises and link these to growth markets. Linkages improved between conservation, production, added value processing, markets, and consumers. Sustainable production practices catalyzed and adopted more widely.

Milestones:

- 2003 Field guides and associated training materials for the design of Integrated Agro-enterprise Development Projects and the formation of Interest Groups in Rural Economic Development available. Financial profitability model developed for evaluating production and processing enterprises. Alliances and projects established in Asia for validation and adaptation of the methods and tools developed by the project in Latin America.
- 2004 Draft guidelines available for designing support systems for rural agroenterprise, based on experiences in Latin America and case studies. Learning alliances consolidated with major NGO partners in Central America, the Andean Region and East Africa. Pilot projects initiated in Vietnam and Lao PDR.
- 2005 Guidelines for identifying and developing viable rural agroenterprises prepared for Eastern Africa, based on pilot experiences in Uganda, Malawi and Tanzania.

Users: Immediate beneficiaries are the technical personnel of GOs and NGOs in rural development and rural policy makers. Ultimate beneficiaries are the inhabitants of rural areas, including female small farmers, and entrepreneurs, who benefit from training and information on market opportunities, postharvest technologies, enterprise skills, and access to better support services.

Collaborators: *Development of methods and technology components:* CIRAD, NRI, PRODAR (in Lima), IDRC, CIP, IITA, CARE, CRS, Foodnet, InterCooperation, IPRA, MADR Colombia, PROINPA, ATICA, Belgium Technical Cooperation - Ecuador. *Execution of pilot projects:* CIPASLA (Colombia), CLODEST (Honduras), Africare (Uganda), TIP (Tanzania), ADD-Lilongwe (Malawi), Proyecto Emprender (Ecuador), Proyecto Marenass (Perú), MADR (Colombia).

Training and networking: PRODAR-IIICA (Peru), ASARECA (Foodnet), SEARCA, UPWARD, members of PhAction, REDCAPA.

CGIAR system linkages: Crops and Livestock Production Systems (15%); Livestock (5%); Protecting the Environment (20%); Training (10%); Information (10%); Networks (10%); Organization and Management (30%). Participates in the Global Post-harvest Forum (PhAction).

Project SN-1: Rural Agro-enterprise Development Project – Work Breakdown Structure

Goal

To improve the livelihoods of rural populations in Latin America, Africa and Asia by enhancing the capacity of support institutions to promote competitive and environmentally responsible agroenterprises that equitably link smallholder farmers to growth markets.

Purpose

To develop methods and tools for use by local practitioners in the participatory design and execution of decentralized rural agro-enterprise development schemes aimed at diversifying and adding value to the production of smallholder farmers.

Output 1

Tools, methods, and information for identifying and developing market opportunities, as an input for the design of economically viable and sustainable rural agro-enterprises.

Activity 1.1

Develop methods for identifying market opportunity at the ecosystem and micro regional levels, adapted to the needs of small agro-enterprises

Activity 1.2

Develop information system on alternative trade (ATIS)

Output 2

Tools, methods, and information systems that can be used in the selection and local development and adaptation of appropriate post-harvest technologies for small-scale rural agro-enterprises.

Activity 2.1

Develop inventories and systematized information for products and processes with market potential to define information and technology needs

Activity 2.2

Adapt and refine participatory methods for improving processing efficiency and product quality for existing and new rural agro-enterprises

Output 3

Information, options, and recommendations for the design of efficient and effective organizational and business schemes for small-scale rural agro-enterprise and their support services.

Activity 3.1

Design options and recommendations for the organization and operation of rural agro-enterprises

Activity 3.2

Design options and recommendations for enterprise linkages in the agribusiness chain

Output 4

Institutional models and policy options for establishing and strengthening rural agro-enterprises and their support systems within a territorial context.

Activity 4.1

Design conceptual frameworks and methodological options for organizing and integrating production, processing, and marketing functions for the establishment and/or strengthening of rural agro-enterprises

Activity 4.2

Develop guidelines for the design of local support systems for promoting agro-enterprises that contribute to sustainable development at the micro-regional level

Output 5

Alliances consolidated with a range of strategic stakeholders, with whom the project carries out research and training to enhanced the capacity to design and develop successful agro-enterprise projects.

Activity 5.1

Train national personnel in the design and execution of rural enterprise development projects

Activity 5.2

Enhancement of the awareness of the potential of rural agroenterprises to contribute to rural development

Activity 5.3

Consolidate and establish collaborative links and strategic alliances

Activity 5.4

Project development and promotion

Logical Framework 2003-2005

Narrative Summary	Measurable Indicators	Means of Verification	Important Assumptions
Goal To improve the livelihoods of rural populations in LA, Africa, and Asia by enhancing the capacity of support institutions to promote competitive and environmentally responsible agroenterprises that equitably link smallholders to growth markets.	Percentage decrease in rural poverty index in selected areas of Africa, Asia, and LA.	National statistics of different countries where projects have been implemented.	
Purpose To develop methods and tools for use by local practitioners in the participatory design and execution of decentralized rural agroenterprise development schemes aimed at diversifying and adding value to the production of smallholders.	By the end of 2006, the project has complemented its activities in the reference sites by establishing alliances with important partner institutions in LA who are widely using the methods, tools, and institutional models developed by the project. These products have been adapted by partners in Asia and Africa and are applied in a selected number of sites on both continents.	Reports and project documents of our partner institutions.	Political and institutional support for sustainable rural and agricultural development at the reference sites and targeted countries is maintained. Natural disasters or civil strife do not impede progress toward the project's goal.
Output 1 Tools, methods, and information for identifying and developing market opportunities, developed as an input for the design of economically viable and sustainable rural agroenterprises.	Training materials for market opportunity identification available and being used by partners in LA, Asia, and Africa. A series of methods and tools for identifying market opportunities are available for use in different situations; these methods and tools are developed at the reference	Manual published. Annual reports and project proposals. Project home page. Training materials.	Collaborating institutions have adequate resources to use the materials and tools developed.

Narrative Summary	Measurable Indicators	Means of Verification	Important Assumptions
	sites and elsewhere through alliances. Information system on alternative trade available.		
Output 2 Tools, methods, and information systems that can be used in the selection and local development and adaptation of appropriate postharvest technologies for small-scale rural agroenterprises.	Methods and tools developed for establishing local information systems in support of agroenterprise development. Series of manuals on methods and techniques for the participatory development of postharvest technology for improving the efficiency of rural agroindustry. Manuals in preparation on techniques for the participatory development of new rural agroindustrial products and processes.	Project home page. Manuals published. Annual reports and working documents.	
Output 3 Information, options, and recommendations for the design of efficient and effective organizational and business schemes for small-scale rural agroenterprise and their support services.	Case studies of small rural agroenterprises, documenting best practices, key success factors, and lessons learned, completed for LA and Asia. Training materials for the design of business and market plans and strategies for small agroenterprises available. Options for the organization of enterprises, their links in the agrifood chain, and the organization of support services are being tested in the reference	Case studies published. Materials available on the web site Project proposals and annual reports. PhD thesis on agroenterprise clusters (local food systems).	

Narrative Summary	Measurable Indicators	Means of Verification	Important Assumptions
	sites and with other partner institutions.		
Output 4 Institutional models and policy options for establishing and strengthening rural agroenterprises and their support systems within a territorial context.	Ten or more agroenterprise projects being executed at reference sites in LA, Asia, and Africa. Manual for identifying and developing integrated R&D rural agroenterprise projects completed. Guidelines for designing local support systems to promote agroenterprises at the microregional level.	Project proposals and reports. Published field guides and associated training materials. Guide published.	
Output 5 Alliances consolidated with a range of strategic stakeholders, with whom the project carries out research and training to enhance the capacity to design and develop successful agroenterprise projects.	200 personnel trained in aspects of agroenterprise development in LA, Africa, and Asia. Case studies on the adoption and impact of agroenterprise R&D completed. Project's Web site expanded and updated periodically with project outputs. Strategic alliances with research and development partners for both research and capacity building.	Training documents, course evaluations, and annual reports. PhD thesis completed on rural innovation and impact of the project's work in the LA reference sites. Project's Web site. Letters of Understanding, project contracts, and interinstitutional agreements.	

Project Overview

Poverty alleviation is about helping people exploit new opportunities to improve their livelihoods. Promoting entrepreneurship to boost income is just one aspect of this complex process, but it is a powerful one. Toward this end the project develops three types of outputs: (1) strategies for creating the support services that rural agroenterprises need in order to thrive, (2) practical decision-support tools for identifying products with high market and production potential in marginal areas as well as for value chains for these products, and (3) strong partnerships with local, national, and international organizations.

Background

Today's global economy presents rural people with both threats and opportunities. Many small farmers in the tropics can no longer profitably produce traditional staples. But at the same time, rising demand at home and abroad for a wide variety of tropical products is creating new options for them to achieve better livelihoods. The challenge is to help these farmers connect with growth markets by adding value to traditional crops (such as cassava and beans) and by diversifying into new enterprises, based on sound analysis and development of the best opportunities.

The risks of agricultural entrepreneurship are accentuated by persistent production-side bottlenecks: tight credit, high input costs and weak business support services. And on the distribution and consumption side, constant threats to small business viability include poor roads and transport, lack of timely market information and unfavourable international trading regimes.

Demand for CIAT's agroenterprise research findings has led to multi partner learning alliances with development partners such as FOODNET, Catholic Relief Services, GTZ, CARE and Swiss Contact in nine countries in Eastern and Southern Africa and eight countries in the Americas. Through these alliances, CIAT's findings are tested, adapted and used by partner organizations to contribute to improved livelihoods for more than 100,000 poor rural families in Africa and Latin America.

Project Purpose

The work of CIAT's Agroenterprise Project leads to improved performance of the agroenterprises already operating and to the development of new agroenterprises linked to alternative markets. This results in more intensive and sustainable agricultural production, which in turn creates employment, raises household incomes, empowers rural communities, and diversifies land use.

Beneficiaries

The project primarily serves small and medium-scale farmers having only limited access to land, capital, and information. By generating employment in rural areas, its work also creates opportunities for the poorest rural people, mainly landless farmers and labourers. According to participatory poverty assessments conducted at our reference site in Honduras, women head one-third of the households in these two target groups. CIAT research benefits these groups directly in reference sites through action research processes that reach approximately 2,400 families in Africa, Asia and Latin America.

By adding value to development initiatives through learning alliances, research findings strengthen development agencies that reach significantly larger populations. Additionally, the Rural Agroenterprise Project conducts regular regional training courses in Africa, Asia and Latin America and maintains one of CIAT's most popular websites with an average of 6,800 monthly visitors.

Uptake Promotion

The Rural Agroenterprise Project uses four methods for uptake promotion: fieldwork in reference sites or with farmer organizations; learning alliances with development agencies; training; and, the web site. In the case of fieldwork, the relationship between CIAT and poor groups is direct with CIAT scientists spending substantial time interacting with the rural poor and their organizations. In learning alliances, CIAT interacts with major NGOs and their local partners active in rural enterprise development in a range of activities including method design, training, backstopping, documentation and learning with the goal of strengthening capacities and increasing development impact. In addition, research results are disseminated to diverse users via training and maintenance of the project's web site.

Outputs and Impacts

CIAT's Agroenterprises Project carries out action research in partnership with local government organizations, NGOs, producer associations and the private sector. A key first step is to form rural agroenterprise committees to foster collective, coordinated action. The committees develop a strategic plan for agroenterprise development, including a portfolio of high-potential products. For each product, strategies for value chain development are designed and implemented with a range of market actors. Around each value chain, relevant business development services are identified, strengthened or created and a market for them facilitated. The sum of this work is a set of interconnected methods that provides a clear set of strategies for income and livelihood diversification for rural communities and their support agencies. In the last 3 years, CIAT scientists have applied this framework to support and promote diverse kinds of agroenterprises in rural communities in Eastern Africa and Latin America. As of 2003, a new project has complemented this work in Southeast Asia.

In all of the reference sites, rural agroenterprise committees have been formed, and they have developed strategic plans, with portfolios of high-priority products. In Lushoto District (Northern Tanzania), for example, a group of farmers met with successful producers in a neighbouring community to learn about quality requirements for farm products, frequency, volume of delivery and prices. The Lushoto farmers learned that fellow producers 20 kilometres away had organized themselves, introduced new production technologies and captured a share of the high-value fruit and vegetable market in Dar es Salaam. As a result the Lushoto farmers have formed an association to handle their future marketing activities. Elsewhere in Africa, farmers in southern Malawi are experimenting with production and marketing of goats and rabbits, and in south-western Uganda with farm fresh eggs for local sale and pyrethrum flowers for sale to an organic pesticide plant in Kabale town. While these enterprises are new for farmers, Jeffrey Habarwasha, chair of the Muguli (Uganda) income generation committee notes, "We know that development and income generation are processes that don't happen overnight. Despite the hardships and risks, we're ready to forge ahead and make a go of it."

In the municipality of Yorito (Honduras), CIAT methods contributed to the design and implementation of strategies for a high-quality coffee value chain leading to the establishment of a farmer cooperative, organic certification and a sale price fifty percent higher than non-participants. This year, two of the participating farmers were included among the twenty best quality organic coffees in Honduras. In Pucallpa (Peru), similar methods allowed small black pepper producers to differentiate their product and demand prices twenty percent higher than normal as well as negotiate favourable long-term agreements with industrial buyers.

With a view to extending this development process beyond the reference sites, CIAT's Agroenterprises project has entered into learning alliances to support development partners and their projects in 17 countries, provided on-going backstopping to reference site partners, run two regional training courses in Asia and various short-term seminars in Latin America.

Relevance to Sustainable Livelihoods

Rural agroenterprise research has short, mid and long-term livelihood implications for the rural poor. In the short term, CIAT work with national partners has resulted in an average income increase of up to 20% across a selected range of agricultural products in Latin America for smallholders in the project's reference sites. In the mid-term, participating producer groups move into more complex marketing strategies to differentiate their products and develop more stable relations with other market actors leading to additional income increases, rural employment for non-farmers and more stable income patterns. Long-term projections include strategies linking improved production techniques, post harvest activities, new product development and value chain development and management to differentiated, value added products that compete successfully in regional, national and international markets. The establishment of learning alliances between CIAT and major development actors seeks to facilitate similar results across a far wider range of rural communities in Africa, Asia and Latin America.

Policy Implications

Specific project results have influenced local development organizations while the sum of our work – expressed as the “territorial orientation for rural agroenterprise development” – has been picked up and applied by major international development NGOs as part of the learning alliance process in Africa and Latin America. New projects in SE Asia and Central America seek to construct links with government agencies and major donors, respectively, regarding the implications of agroenterprise development for sustainable rural livelihoods and as such represent a new area of work for the project.

Research Highlights in 2003

The following major advances are highlighted this year:

Output 1. Tools, methods, and information for market opportunity identification and development, as an input for the design of economically viable and sustainable rural agro-enterprises

The demand for appropriate tools and methods for identifying market opportunities for smallholder agriculture comes from many quarters. One such demand comes from government and non-governmental development agencies working at the community or local level as they facilitate the process of moving farmers to a greater market orientation, seeking to identify production options that can generate income. Other demands come from national or regional government agencies that need to orient research and development programs by prioritizing investments in support services ranging from research itself, direct technical assistance through extension agencies, and the provision of market information services. The Rural Agroenterprise Development Project (RAeD) has been developing a range of tools for the needs of different clients.

The 'mother' of these tools is the Market Opportunity Identification (MOI) manual published in 1999. This manual has been translated into four languages and is in use in many parts of the world. Most recently in Uganda the National Agricultural Advisory Services, NAADS, has contracted CIAT and ASARECA's FOODNET to carry out a study to identify market opportunities in Kampala for the farmer organizations throughout Uganda that are associated with their enterprise selection process. Beyond providing information that will subsequently be used to prioritize the types of farmer enterprise that will be supported through the decentralized and privately-oriented extension scheme, an important objective is to work with NAADS in the validation of a process that can be subsequently used by service providers in other major towns in Uganda.

With the experience gained in using the MOI methodology, modifications are being incorporated that respond to the suggestions made by those that have used the methodology. In 2003, a "tool book" in multimedia-computerized format that already incorporates many of these changes was produced and tested in training events in Central America. Interestingly, the multimedia format was not universally popular in these events, suggesting that these novel forms of communication need to be backed up by conventional manuals and appropriate field exercises.

The full Market Opportunity Identification process requires that the persons that undertake the studies have a certain level of technical and business expertise, or have access to these. At the local and community level, these skills are not always available or access to them is limited. The principles of market opportunity identification have been adapted for use by market facilitators in supporting enterprise selection at the community level. This process involves farmers in all steps of the process, from participatory diagnosis, market visits with farmers, collection of technical and economic information of promising options, and the calculation of simple economic parameters to compare among options. This participatory methodology is now being validated and improved with selected communities, NARI and NGO partners in 8 sites in Uganda, Tanzania and Malawi. These local processes engender strong ownership by the communities involved. They require facilitation by trained extension personnel. Currently, most extension agents come from a production background and have few or no business or market skills. The 'retooling' of these extension agents is a major challenge for both government and non-government service providers. The Learning

Alliance concept (see Output 5) is a way in which the RAeD project is attempting to contribute to this process.

Successfully moving farming communities to an increased market and enterprise orientation requires that they can access, on a near permanent basis, information on markets that will support their existing enterprises and provide them with ideas for new options. To meet this need the RAeD project is developing tools, linked to the Local Rural Agroenterprise Information Systems (see Output 3) that permit the collection and analysis of pertinent market information.

Output 2. Tools, methods, and information for the development of appropriate postharvest technologies for small-scale rural agro-enterprises

Once farming communities and their service providers have identified promising enterprise options and the process of enterprise development has commenced, there is an on-going need to maintain competitiveness. An important aspect related to competitiveness is the need to be innovative in incorporating cost reducing and quality enhancing improvements into postharvest handling and processing activities. The RAeD project has over the past two years been developing a methodology to enhance local capacity in rural communities to innovate in this crucial aspect of the market chain.

Using a similar philosophy to that of the Local Agricultural Research Committees developed by the Participatory Research Project, and with their support, a set of methodological steps have been defined and the process tested with producers of *panela* (raw sugar) in Cauca Department in Colombia. *Panela* is produced in small artesanal processing units called *trapiches* (sugar mills) of which there are over 200 in the region. While a strong demand exists in urban markets, the rustic nature of the *panela* being produced does not meet the quality characteristics demanded by the consumer. Without innovation, there is a considerable danger that these *trapiches* would go out of business causing significant hardship to the local population through loss of jobs and income. This situation is encountered by many small rural agro-industrial enterprises.

The local innovation process centers on the *Grupos de Investigación en Agroindustria Rural* (GIAR, Rural Agroindustry Research Groups). The members of these groups are selected by the community to undertake adaptive research on improvements to the efficiency and quality control of the *panela* manufacturing process. The agenda is agreed upon through discussions among *panela* producers and their service providers. Activities have included the evaluation of appropriate varieties for the production of good quality *panela*, the modification of processing technology to local conditions, the promotion of good manufacturing practices (BPM) and the diversification of product presentation and formulation in line with market demand.

This example of the development of a local capacity to access, evaluate and incorporate postharvest technological innovations has captured the attention of the Colombian Ministry of Agriculture. The development organizations that partnered the RAeD project in this process have achieved funding to initiate the process in 14 municipalities. The RAeD project will now test the methodology with other commodities and in different institutional and socioeconomic conditions. Opportunities to interact with the CIAT commodity improvement projects are being sought.

Output 3. Information, options, and recommendations for the design of efficient and effective organizational schemes for small-scale rural agro-enterprises and their support services

Access to information is key to appropriate decision-making, both for the selection of promising enterprise options for smallholder farmers and subsequently to improve the performance of an enterprise once it has been established. The major advances in Information and Communications Technologies (ICTs) over the past decade provides a major opportunity to put these technologies at the service of rural enterprises.

In partnership with the Information and Communication for Rural Communities Project (InforCom) and RAeD project has devised a novel, three-part approach for this purpose. The first part involves community telecenters, managed by strong local organizations. The second part entails local development of Web-based information systems, which combine important knowledge from farmers' experience with relevant information obtained from research and development organizations. In support of agroenterprise development, for example, these systems can provide information on such topics as markets (current prices, annual price patterns, directories of buyers, quality requirements, etc.), technological options (processing, technologies, etc.), and availability of support services. In order for those systems to be locally relevant and useful, it is essential that they be developed in a participatory manner with community-based stakeholder groups, representing farmer associations and other local organizations. The establishment and training of such groups constitutes the third main component of the approach. By linking the Web-based information system with other communications channels, these groups can discover and share the knowledge their communities need to build and sustain competitive agroenterprises.

This approach has been developed over a two-year period in Cauca Department, Colombia in support of the activities of the Local Agroenterprise Committee, which is made of service providers and farmers organizations and promotes and supports agroenterprise development. The region possesses community telecenters that are being managed by local development and community based organizations. These telecenters, beyond providing a general communications service that is run as an enterprise, have a social objective of promoting local development. The research activities have concentrated on the development of an electronic information product, or web site, and the development of a local communications network. The development of the web page is participatory in nature with active involvement of the beneficiaries in its design and the development of content. Diagnostic studies identified two principal components on which to base the design of the web site: a) a price information service, and b) agroenterprise information resources. In the first instance, the content of the page is focusing on those products that have been prioritized by the Local Agroenterprise Committee, and include *panela*, blackberry and milk products. Complementary information on the local information network and how it operates, and the activities and results of the information project itself are also included. The local communications network itself centers around the consolidation of groups in the community that are trained to manage information and provide the link between information provide in electronic form and its subsequent diffusion, using other communication means.

The process of trying to establish a local information system has revealed a number of challenges that need to be faced in order for the promise of ICTs can be fully realized. Not least of these is the need for forming a range of partnerships or relationships that go beyond the purely local, where the project is being implemented, but includes organizations from regional and national levels whose business it is to supply and receive information. A further aspect relates to the need to develop levels of trust and confidence within communities that allow them to interact and communicate freely among themselves and with the communications group. Success in achieving rural populations that are fully integrated into the information society require an enabling environment that develops skills in areas such as team work, leadership, conflict

management, and that provides basic physical infrastructure for bringing people together.

Output 4. Institutional models and policy options for establishing and strengthening rural agro-enterprises and their support systems at the microregional level

The RAeD project has developed a 'territorial' approach that seeks to enhance the capacity of local institutions to facilitate enterprise development in a flexible, dynamic and coordinated fashion. This approach includes four components:

1. The identification and strengthening of a working group comprised of diverse local organizations with common goals and strategies for rural enterprise development;
2. The identification and evaluation of market opportunities available to the 'territory' (see Output 1);
3. Participatory production to market chain analysis, consensus building with diverse actors along the chain, and design of a shared strategy to increase chain competitiveness, and
4. The identification and promotion of appropriate and sustainable business development services and markets for these services for the 'territory'.

Following a period of approximately four years of research and validation work with partners in several countries, a field guide has been published on the third of these components: the design and development of strategies for improved market chain competitiveness. The essence of the field guide is to illustrate to development partners steps that can be undertaken to promote collective action to improve market chain effectiveness, and facilitate the conversion of market chains into 'value' chains. The method seeks to develop a common vision among actors for the long term, systematic strengthening of the value chain. An action plan may include activities, covering research and development aspects, in production, post-harvest handling and processing, marketing, business organization and support service provision. The plan is likely to include short-, medium- and long-term activities that blend local knowledge and resources with external ones to improve value chain competitiveness.

The guide is not meant to be used as a 'recipe' book, but rather to examine the principals on which a successful strategy should be based. Tools are presented for collecting essential information for decision-making and for prioritising actions for the strengthening of the enterprise. The guide is already in use in Central America and E Africa (see Output 5) where it will be adapted to the needs and capacities of local partners.

Output 5. Enhanced capacity to design and develop successful agro-enterprise projects, within CIAT and other institutions

The RAeD project now has activities and internationally recruited staff on all three continents: Latin America and the Caribbean, Africa and Asia. The opportunities for enhancing the capacity of our partners to design and develop successful agroenterprises, and entering into mutual learning processes with them, are now global. Three aspects of the RAeD projects work in this area stand out this year:

In Asia, the 'Small-scale agroenterprise development in the uplands of Lao PDR and Vietnam' (SADU) financed by SDC for four years got underway this year. The development of agreements with country governments, hiring and induction of international and local staff, and the selection and preliminary characterization of field sites are among the principle activities that have been undertaken. In April, the second

regional three-week training workshop on 'Sustainable Agro-Enterprise Development in a Micro-regional Context' was undertaken with the Postharvest Technology Institute, Vietnam, the SEAMEO Regional Center for Graduate Study and Research in Agriculture (SEARCA), and the Users' Perspectives With Agricultural Research and Development (UPWARD). 24 participants from 4 countries participated in the three-week workshop. Among the participants there were several from partner institutions with which the SADU project will interact.

The concept of the "Learning Alliance" for establishing a novel relation with major development partners was initiated in 2002. A Learning Alliance is a model of mutual learning between research and development institutions, with a view to enhancing the rate of take up of innovative concepts, methods and technologies. During 2003, alliances were continued with CARE Nicaragua and CRS East Africa (nine countries). A new alliance was negotiated for Central America with CRS in El Salvador, Honduras, and Guatemala, CARE Honduras, the Universidad Nacional Agraria (UNA) Honduras and GTZ Honduras. In the Andean Region a learning alliance is in the process of being established with CRS for Peru, Ecuador, Bolivia and including Haiti. Through these alliances, the project's findings are being tested, adapted and used by partner organizations to contribute to improved livelihoods for more than 100,000 poor rural families in Africa and Latin America. IDRC is supporting the analysis of the model through the project 'Diversified livelihoods through effective agro-enterprise interventions: creating a cumulative learning framework between CIAT, development NGOs and donors in Central America' which was approved this year.

The demand for technical expertise in the area of rural enterprise development is well illustrated by the fact that in 2003 the project in Central America and the Andean Region generated over US\$30,000 by providing services through participating in project evaluations, undertaking consultancies on market chain analysis, project formulation and training. These resources are invested in research product development. The project has established a relationship with CATIE in Costa Rica for undertaking training on enterprise development. Two regional training courses on linking farmers to production chains have been undertaken in 2002 and 2003. In 2004 three further courses are scheduled. All of these courses are run on a full cost recovery basis.

Output 1

Tools, methods, and information for identifying and developing market opportunities, as an input for the design of economically viable and sustainable rural agro-enterprises.

The purpose of Output 1 is to generate market-oriented methods and information for the small farmer economy and rural agro-enterprises to facilitate their sustainable linkage with growth markets.

Activity 1.1 refers to participatory methodologies for market intelligence and market research to select agricultural, animal, and forestry products, in fresh or processed form, with market potential as an input for the design of economically viable and sustainable production systems for small farmers. A methodology was successfully applied in three reference sites representing fragile hillsides and tropical lowland ecosystems in Latin America. Other methodological options for market intelligence have been conceptualized and are in the process of being developed.

Activity 1.2 refers to user-friendly, Internet-based information system on alternative trade, encompassing segments such as fair trade, ethical trade, and conservation. Special emphasis is placed on the booming organic market. This information system is client-oriented and includes a directory of contacts in the alternative trade chain, information on global market trends, and guidelines related to alternative trade.

Highlights

- Partners in E and S Africa are extensively using the Market Opportunity Identification (MOI) methodology developed by the project in 1999. The principles of the methodology are being adapted for use by farming communities and their facilitators to identify promising enterprise options in an inter-project initiative under CIAT's Rural Innovation Institute. Based on these experiences, an improved version of the manual will be available in 2004.

Activity 1.1 Develop methods for identifying market opportunities at the ecosystem and micro regional levels, adapted to the needs of small agro-enterprises

1.1.1 Improvement of manual on market opportunity identification (MOI)

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Collaborators: Rupert Best, Luis Hernández, IPRA, Proyecto Emprender (Ecuador); Proyecto MARENASS (Peru), participants in training workshops worldwide

The MOI manual has been used extensively worldwide, especially in Latin America, for training of technicians from government and non-government rural development agencies. In 2003, the Catholic Relief Service (CRS) and their partners have used the methodology in 6 countries in E and S Africa as part of the Learning Alliance with CIAT's RAeD (see section 5.1).

This methodology, which promotes diversification and a greater market approach by small farmers, requires that the person coordinating its execution have certain expertise in basic business concepts. This coordinator can be a small farmer or an external facilitator.

A typical use of the manual is described in section 1.1.2 below, where the tool has been used in Kampala to identify market opportunities for urban and peri-urban farmers.

The manual is undergoing modifications in order to (a) respond to many suggestions from participants who have been trained in the MOI methodology during the last six years; and (b) adjust its content in accordance to the RAeD Project's four-module "Territorial approach to rural business development" or TA-RBD. The MOI methodology corresponds to Module 2 of the aforementioned territorial approach.

The main changes underway are the following:

- The first section, on the regional biophysical and socioeconomic profile, will be eliminated from the manual and transferred to form part of the first module of the TA-RBD.
- The fourth and last section, which is a summary focusing on the design of Integrated Agro-enterprise Projects (IAPs), will also be transferred to form part of module 3 of the TA-RBD.
- The manual's participatory approach will be strengthened, by suggesting practical ways of including representatives of actors such as small farmers, intermediaries, processors, etc. in the planning and execution of the rapid market study and the characterization of market options.
- From the start, the manual will briefly explain the difference between business concepts such as market research, pre-feasibility analysis, marketing management and new-product development, since confusion has been observed among participants in the MOI workshops. The MOI manual incorporates themes related to the first two concepts.
- A short section will be included so that practitioners will understand the implications of- and activities involved in new product development.
- Greater emphasis will be placed on animal-based and agro-industrial products throughout the manual.
- The section on the "rapid market survey" will be expanded to provide more guidelines relative to key questions for actors in the marketing channels.
- The manual will explain the implications of new product development to small farmers, in terms of risk and demand for management and/or marketing expertise.

The final version of the MOI manual will be ready by December 2003. However, a large proportion of these modifications have already been incorporated into abbreviated versions of the methodology, such as a multi-media computerized format (Tool Book), and a PowerPoint presentation with notes. The purpose of these abbreviated versions is to enhance diffusion and is available, together with the complete manual, on the project's web page. These abbreviated versions of the MOI manual have already been tested in several training workshops.

1.1.2 Validate and test the Market Opportunity Identification tool in an African urban and peri-urban agricultural setting

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Collaborators: John Jagwe, Shaun Ferris (FoodNet), Margaret Sazuba (Kampala City Council)

Kampala, the capital city of Uganda covers an area of 197 km² and has a population of 1.2 million inhabitants with a growth rate of 3.9 percent per year. Kampala in the 21st century is the showcase of Uganda's economic, political and social transformation. However, the rapid growth of Kampala raises concerns that the migration of people towards the city is bringing with it a migration of poverty and that often-unplanned urban growth is accompanied by environmental pollution, health risks and a decline in the quality of life. On the other hand, the growth of the city represents a large expansion in markets for agricultural products. Many of these markets offer a comparative advantage to producers and processors located within or close to the city. Urban agriculture is widely practised both within the municipal boundaries and peri-urban areas. In 1992, it was estimated that 56 percent of the land in the city is used for agriculture (Maxwell, 1995b) and that approximately 70 percent of all poultry products consumed in Kampala are produced in the city (Maxwell, 1995a).

In 2002, as part of the Strategic Initiative on Urban and Peri-Urban Agriculture (SIUPA) of the Consultative Group for International Agricultural Research (CGIAR), the first one-year phase of a project to strengthen and promote urban agricultural systems was initiated with the goal of improving food security and the livelihoods of the urban poor in Kampala. This first exploratory and information gathering phase of the project will be the basis on which to develop a wider research and development proposal. The three components of the first phase are: i) An investigation of livelihoods and production systems; ii) An assessment of market opportunities for urban and peri-urban farmers, and iii) An exploration of schools as extension service providers and as producers of high quality seed.

The research described in this report deals with the assessment of market opportunities for urban and peri-urban farmers in Kampala. The purpose of the study is to identify a portfolio of agricultural products whose production is technically and economically feasible by urban and peri-urban farmers and to establish the purchasing conditions for the identified products. The information generated will be subsequently used to strengthen or create new micro- and small crop and livestock enterprises.

Approach

The market opportunity identification process that is being employed has been adapted from the methodology described by Ostertag (1999). It has involved the following steps:

- i) A participatory rapid urban appraisal to establish the socio-economic and institutional profile of the area under study;
- ii) A rapid market study to capture opportunities for existing and potential crop and livestock products, and
- iii) An evaluation of the most promising options for urban and peri-urban farmers.

The third step is still in progress and the results are not reported in the present report.

Participatory rapid urban appraisal

The participatory rapid urban appraisal was undertaken as a common activity that provided information for the livelihoods and production systems and the market opportunity identification components of the project. Four parishes, each representing different socio-economic conditions (urban old, urban new, transition from peri-urban to urban and peri-urban settings), were randomly selected from four of the five of administrative divisions that make up Kampala. The criteria used for selecting parishes in each division included: a) presence of crop and livestock enterprises, b) presence of

farm produce markets, c) presence of NGOs working towards the empowerment of local communities, d) relative levels of environmental degradation/pollution, f) population density and g) presence of local food processors.

The main tools used in the rapid urban appraisal were focus group discussions, interviews with key informants and observation. A total of 190 farmers (86 men and 104 women) from the four parishes participated in the exercise. Crops and livestock produced for income generation and household food security were identified. In addition, the scale of production, market outlets, value addition and constraints for the various enterprises were determined.

Rapid market study

The rapid market study included the following activities:

- a) Defining strategies for the market survey. Based on the information generated by the rapid urban appraisal, the enterprises of major importance to urban and peri-urban farmers were established and ranked. The Ansoff product-market growth matrix (Kotler, 1999) was used as a tool for planning the survey in terms of growth alternatives, based on the perceived opportunities and constraints of urban and peri-urban farmers in Kampala. The following market research strategies were adopted:
 - Products whose demand exceeds supply
 - Products that are in scarce supply
 - Products that are currently sold by urban and peri-urban farmers
 - Alternative high value products that could be grown by urban and peri-urban farmers
 - Street foods
- b) Developing the research plan and corresponding tools. A matrix checklist of the above market research strategies against the different categories of market outlets (traders, markets, supermarkets, hotels, food industries etc.), from which relevant information could be obtained, was developed. Where available, secondary sources of market information were consulted. For primary data collection, questionnaires for each of the different market categories of respondents were designed, tested and adjusted. All of Kampala's 5 major produce markets and 3 large supermarkets were included in the survey. In addition, 5 small supermarkets and a total of 21 small shops/kiosks were randomly selected from each of the five divisions of Kampala city. Top and middle range hotels have been interviewed, and 5 food processors were selected based on the categories of products currently being sold by urban and peri-urban farmers.
- c) Data collection. The survey was conducted using semi-structured questionnaires to obtain the information required. The methods of contact were by face-to-face discussions in teams of two and telephone interviews.
- d) Data processing and analysis. Data were cleaned, standardised and manually coded. Analysis was done using the Statistical Package for Social Scientists (SPSS) computer software.

Evaluation of options

Based on the results of the rapid market survey, and for those options that look most promising, more precise information on the market, the production characteristics of the products in question and their corresponding financial costs and returns will be obtained. With this additional data, farmers will be asked to rate the different options against their own criteria for selecting enterprise options. This exercise is pending.

Results

Participatory rapid urban appraisal

Table 1.1 shows the existing agricultural enterprises in order of their importance for income generation and household food security use, as well as an indication of the ranking of enterprises based on the number of people involved.

Table 1.1 Existing agricultural enterprises in order of their importance for income generation and food security

Parish	Bukesa	Banda	Buziga	Komamboga
Classification	Old urban	New urban	Urban-peri-urban transition	Peri-urban
Participation m=male f=female	74 (41 m, 33 f)	51 (23 m, 28 f)	40 (12 m, 28 f)	25 (10 m, 15 f)
Principal income generating enterprises	<ul style="list-style-type: none"> - Poultry - Cattle (dairy) - Mushrooms - Fruits - Coco yam 	<ul style="list-style-type: none"> - Coco yam - Poultry - Cattle (dairy) - Leafy vegetables - Pigs 	<ul style="list-style-type: none"> - Poultry - Cattle (dairy) - Fruits - Pigs - Mushrooms - Sugarcane 	<ul style="list-style-type: none"> - Pigs - Cattle (dairy) - Poultry - Fruits - Cassava
Food security crops/livestock	<ul style="list-style-type: none"> - Fruits - Matooke - Maize - Beans - Coco yam 	<ul style="list-style-type: none"> - Leafy vegetables - Coco yam - Beans - Maize - Matooke 	<ul style="list-style-type: none"> - Sweet potato - Cassava - Matooke - Beans - Maize - Fruits 	<ul style="list-style-type: none"> - Sweet potato - Cassava - Beans - Matooke - Fruits - Leafy vegetables
Ranking of crops/livestock based on number of people involved	<ul style="list-style-type: none"> - Poultry - Matooke - Flowers (potted plants) - Maize - Beans - Fruits 	<ul style="list-style-type: none"> - Coco yam - Poultry - Cassava - Leafy vegetables - Matooke 	<ul style="list-style-type: none"> - Sweet potato - Cassava - Poultry - Beans - Matooke - Fruits 	<ul style="list-style-type: none"> - Sweet potato - Cassava - Poultry - Pigs - Matooke - Fruits

The results indicate that the most important income generating products in Kampala are poultry (broilers and eggs), milk, pigs, fruits (mango, avocado, jackfruit and paw paw), cocoyam, mushrooms and leafy vegetables. There is no significant overlap between the principal income generating enterprises and food security crops and livestock products produced for home consumption. Among the important income generating enterprises, poultry and fruits are the two categories of enterprise common across all urban/peri-urban categories.

Table 1.2. summarizes the scale of operation, prices, market outlets and constraints faced by farmers for the principal income-generating products. With the exception of dressed poultry, pork meat and cooked cocoyam as a snack food, there is little value addition and there are no sales to food industries. The relative scale of production

conditions the type of market outlet that farmers are using for any particular product. Among the constraints, farmers mentioned lack of appropriate (cold) storage facilities and lack of capital, both of which limit the possibility to bulk production of higher value and perishable products (poultry, fruits, mushrooms etc.), and thus capture higher volume markets.

Across the different groups (old urban, new urban, transition and peri-urban) it was observed that there was a definite gradient in terms of age, degree of responsibility, ownership of resources and equality of participation of men and women, and level of interest and motivation. In the old urban situation participants were younger, appeared to have time at their disposal, were alert and open to new opportunities and with very high expectations with respect to the project. There was also more equal participation of men and women in the discussions that were conducted in entirely in English. On the other hand, in the peri-urban situation, participants were more elderly, possessed more resources and had other commitments, which made them less disposed to invest more time than necessary. The men dominated the discussions that had to be conducted in local language because few people spoke English.

Rapid market survey

In Tables 1.3., 1.4. and 1.5. the responses from all categories of market outlet have been bulked for the purposes of this result summary.

Table 1.3. shows that between 65-100% of traders in all product categories reported equal or greater sales compared to from the previous year.

Table 1.4. indicates that there is demand for the crops and livestock products produced by urban and peri-urban farmers. This implies that these products could present an opportunity for urban and peri-urban farmers to increase their incomes if they can meet the demands of traders in terms of quality, quantity, continuity and price (see Table 1.5.). It also shows that demand exists for fruits and vegetables other than those being currently produced.

Discussion and conclusions

Tables 1.2. and 1.5., illustrate that on average actual supply quantities for all products by urban and peri-urban farmers are less than the quantities demanded by traders, even the small kiosks that specialize in fruits and vegetables. This explains why most of the products shown in Table 5 are procured from rural districts where supplies are sufficient and more reliable. This implies that urban farmers face two alternatives: i) to confine themselves to the local or niche markets that they can supply with their present production levels, or ii) move toward collective action as a means to supply greater volumes to those markets indicating growth possibilities.

Table 1.2. Scale of operation, prices, market outlets and constraints of the principal income-generating products.

	Poultry	Milk	Fruits	Pigs	Mushrooms	Cocoyam	Leafy vegetables
Average supply quantity per household	600 broilers/year 2,500 trays of eggs/year	10,950 litres/year	Avocado: 300 kg/year, Mango: 300 kg/year, Pawpaw: 150 kg/year, Jackfruit: 200 kg/year	50 kg/year	750 kg/year	1200 kg/year	560 kg/year
Average supply price (Ushs)	3,300/broiler Eggs 2600/tray	450/litre	Avocado and Mango-200/kg, Pawpaws-500/kg, Jackfruit 300/kg	1650/kg	3000/kg	500/kg	1000/kg
Market outlets	Shops, small local supermarkets, roadside roasters, restaurants.	Neighbours, local retailers	Neighbours, roadside vendors, wholesalers	Butcheries, restaurants, small local supermarkets	Small local supermarkets, hotels, restaurants, shops, produce markets, neighbours	Produce markets, roadside vendors	Schools, neighbours, market vendors
Supply form	Live birds, dressed	Fresh	Fresh	Live pigs, pork	Fresh and dry	Fresh and often cooked	Fresh
Constraints	Limited capital, unreliable markets, expensive inputs.	Lack of storage facilities, limited capital	Lack of storage facilities	Low prices	Unreliable markets, lack of market information, lack of storage facilities for fresh mushrooms	Lack of organised marketing	Lack of storage facilities, limited capital investment

Table 1.3. Change in sales over the past two years for various product categories (percent of respondents)

Responses/product	Fruits (n=35)	Vegetables (n=34)	Poultry (n=11)	Dairy (n=9)	Pork (n=6)	Mushrooms (n=7)
Greater than previous year	57.1	61.8	54.5	66.7	76.5	42.9
Equal to previous year	8.6	11.8	27.3	11.1	23.5	42.9
Less than previous year	17.0	20.6	18.2	22.2	0	0
No idea/no response	17.0	6.0	0.0	0.0	0.0	14.3
Total	100.0	100.0	100.0	100.0	100.0	100.0

Table 1.4. Products with increasing sales and in scarce supply

Category	Products with high sales growth	Products in scarce supply	Reasons for scarcity
Poultry	Eggs Broiler Local chicken	Local chicken Broiler	Local birds- scattered nature of production and distant sources of supply Broilers- unreliable supplies
Fruits	Mango Avocado Jack fruit Apple Water melon Pineapple Sweet banana (finger banana) Bogoya (large banana) Paw paw Passion fruit	Avocado Paw paw Water melon Orange Mango Pineapple Tangerine Passion fruit	Seasonality of production Delay/lags in importing some fruits.
Vegetables	Leafy vegetable (bugga, dodo, jobyo) Tomato Cabbage Onion Green pepper Eggplant Broccoli Mushroom Carrot Garlic Hotmeal Ntula Cucumber	Leafy vegetable (nakati, bugga, dodo) Onion Pumpkin Garlic Green pepper Red pepper Tomato Eggplant Mushroom Carrot	Seasonality of production Delays in transit for the imported products.
Legumes	Bean Cowpea Groundnut		

Category	Products with high sales growth	Products in scarce supply	Reasons for scarcity
Livestock	Beef Pork	Pork Goat	-Scattered production. -Government law prohibits transporting goat together with cattle, yet its uneconomical to transport goats alone.
	Dairy Milk Yoghurt Butter Fish	Milk	-Seasonal production -Distant sources of supply

Table 1.5. Selected products with market potential and their purchasing conditions

Product	Purchase price	Minimum purchase	Source	Quality standards
Fruits				
Mango	218/= per kg	250 kg per day	Masaka, Jinja	Mature, half ripe, free from external damages
Avocado	312/= per kg	42 kg per day	Kabale, Mbarara, Masaka	Mature, half ripe, free from external damage
Paw paw	517/= per kg	965 kg per day	Mukono, Mpigi	Mature, half ripe, free from external damages
Livestock				
Dairy Milk	370/= per litre	2,050 litres per day	Mbarara, Nakasongola, Mukono	Good odour Fresh and concentrated
Pork	1350/= per kg of live for carcass	3 pigs per day	Masaka, Jinja, Mpigi, Mukono	Low fat content Min. weight of live carcass (16kg) Max. weight of live carcass (55kg)
Vegetables				
Bugga	778/= per kg	23 kg per day	Wakiso,	Fresh and intact green leaves
Dodo	778/= per kg	30 kg per day	Mpigi	"
Nakati	1000/= per kg	16 kg per day	"	"
Carrots	950/= per kg	37 kg per day	" Kabale, Mbale	" Clean, medium size, orange colour
High value products				
Mushrooms	3000/= per kg (fresh) 4000/= per kg (dried)	11.7 kg per day	Kampala Jinja	Mature Well dried Good aroma

Product	Purchase price	Minimum purchase	Source	Quality standards
Poultry				
Local chicken	4500/= per bird	66 birds per day	Lira, Arua, Jinja, Iganga	Average sized and in good health
Broilers	3200/= per bird	108 birds per day	Kampala, Jinja	At least 1.5 kg and in good health

In addition, the average purchase/wholesale prices of some of the products studied, like milk and pork, obtained from districts other than Kampala were found to be less than the farm gate prices of the same products produced in Kampala. This could be attributed to, *inter alia*, economies of scale enjoyed by extensive producers in rural areas (case of milk) or lower feed costs (case of pigs). On the other hand, there are certain commodities like poultry, mushrooms and fruits in which producers in Kampala have a comparative advantage because of proximity to feed supplies (poultry), and closeness to market that reduces transport costs and enables the timely delivery of fresh produce (mushrooms and fruits).

Based on this analysis, it is possible to categorize the current products of urban and peri-urban farmers in the following manner:

1. Those products with which farmers are meeting all the purchase conditions with respect to quantity, quality, continuity and price. Examples of these are poultry (broilers and eggs) and mushrooms.
2. Those products with which farmers are meeting requirements of quality and price, but are unlikely to meet the additional requirements of quantity and continuity in order for their enterprises to grow. Examples of these are vegetables and fruits.
3. Those products with which farmers are unable to compete in terms of price, quantity and continuity with producers from rural areas selling into mainstream markets. The examples of these products are pork and milk. The quality of these products, especially milk, is competitive and could be used as a lever to capture a share of the market that will pay higher prices for better quality.

Peri-urban farmers would be better placed to make use of the opportunities identified by the market study that require land as a principal input (dairy, pigs, fruits and vegetables). However, it was interesting to observe the relative lack of motivation at the outset towards new opportunities, relative to those farmers from the urban areas. Whether this attitude might represent an obstacle needs to be further investigated.

Urban farmers were open to new opportunities. However, the study has been unsuccessful in identifying alternative products, beyond mushrooms and poultry, of high value and with a quick return on investment that could be produced on reduced land areas.

Overall, the study has shown that demand for a wide range of food products is growing in Kampala. This is to be expected given the rate of growth and economic development. While the marketing of food, especially fresh food, is still predominantly in the hands of small traders in produce markets, there is an increasing trend towards the 'supermarketization' of the food system (Weatherspoon and Reardon, 2003). Urban and peri-urban farmers, at least those with whom the project has interacted, have not yet

been able to capture a share of this new market that has very demanding purchase conditions.

Recommendations

As mentioned in the introduction, this study is part of an exploratory and information gathering process whose results will form the basis of a wider proposal to support urban and peri-urban agriculture in Kampala. The preliminary results show Kampala farmers to be market oriented and that there are opportunities for them to grow their enterprises and thereby improve their livelihoods. However, there are many obstacles for them to overcome.

To be able to achieve the goal of improved livelihoods will require an integrated and concerted program that brings together a number of support institutions that can provide appropriate services to urban and peri-urban farmers. At present this type of integrated program does not exist. The inter-institutional and multidisciplinary nature of the present project is an attempt to bring together the most appropriate actors, from both research and development.

With respect to the marketing and enterprise development component of this initiative, local capacity needs to be built to provide the following functions:

1. Market information that can help farmers decide what crops and livestock products to produce and where to sell;
2. Microfinance schemes to motivate expansion of production and the creation of new enterprises;
3. Technical and business extension and training services;
4. A legal framework that will encourage appropriate and environmentally sound agroenterprise activity in urban settings, including access to suitable land resources;
5. Support for farmer organisation for collective action in marketing and the provision of other essential services (inputs etc.).

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1.1.3. Define and develop prototypes for other tools for market opportunity identification

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Since implementation of the methodology presented in the MOI manual requires considerable business expertise and time, several alternative MOI tools are being proposed that are simpler and shorter, but that will certainly limit the amount and/or quality of information collected. These proposed tools in fact reduce the need for facilitators, consultants or coaches to guide small farmers throughout the MOI process. These are as follows:

Rapid Market survey, focusing on identifying key market trends and parameters for selling traditional and potential commodities or agro-industrial products, such as quality, quantity and continuity required, plus potential purchase price. It consists basically of the first section of the MOI manual, which can be used as a stand-alone tool, with some minor additions.

Market visits are simple activities but that have to be adequately planned and coordinated and can provide very good information. Generally, participants select one or more products, either traditional or new, and then focus in identifying the key market requirements for selling these products. A prototype is underway, based on the experience with small farmers in the Cabuyal reference site in northern Cauca, Colombia. The Enabling Rural Innovation (ERI) initiative implemented in Africa uses market visits by farmers as part of the process for selecting income-generating option for farming communities (see section 1.1.4 below).

Local Market Intelligence System (LMIS) is a simple tool that allows pertinent market information to be collected on a permanent basis. As the basis for developing the prototype, a survey was applied in October and November 2001 to 30 small farmers in 20 first- and second-level organizations, including several local agricultural research committees (CIALs in Spanish) in Honduras, Colombia, Nicaragua, Bolivia and Ecuador. The purpose of the survey was to identify what type of information relative to income-generating activities is really valuable for small farmers; how and where they would like to receive this information, and to what extent they are willing to pay for it. This tool poses the challenge of being sustainable in the long-term. A report on the survey will be available in December 2003, and a LMIS prototype will be developed and tested in one or more of CIAT's reference sites, and possibly in other locations.

1.1.4. Development of a participatory community-oriented tool for the identification of market opportunities and selection of promising enterprises

Over the past two years, the Enabling Rural Innovation (ERI) initiative, an inter-project collaboration of CIAT's Rural Innovation Institute, has been implementing in Eastern and Southern Africa a community-based approach for identifying market opportunities and building profitable agroenterprises as part of a wider project aimed at enhancing the innovation capacity of rural communities. The selection of options for generating income requires collecting information that will help the farmer make decisions appropriate to his/her situation. The methodology that is being tested was described in last year's annual report.

Communities have selected enterprise option after undertaking market and enterprise visits where an 'income group' or 'market committee' is facilitated by local GO and NGO partners to conduct participatory market research (PMR) to find out information on varieties and types of products that are in high demand or scarce supply 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.

In 2003 the number of communities groups with which we have been working was increased from 7 to 19, with a total of over 800 farmers. 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 participatory diagnosis (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 are acquiring sufficient capacity to evaluate market opportunities, select enterprises and conduct experiments before expanding to larger areas.

Table 1.6. Community agroenterprises and food security options selected by farmers' groups in the pilot communities.

Country and Site	Enterprises Selected	Food Security
Uganda		
Kabale,	Pyrethrum, eggs	Common beans
	Potatoes, goats	Beans
Tororo	Beans, peanuts	Beans, maize, peanuts
Hoima	Onions, mango, pigs	Beans, sweet potatoes
Tanzania		
Hai	Beans, sunflower, garlic, tomato	Beans, maize
Lushoto, Shashui	Tomato, beans, zucchini, red peppers	Beans
Malawi		
Dedza	Goats, beans, rabbits, pigs	Potatoes, beans
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 more detailed analysis of the chain of actions and actors involved from production through marketing. The process of identifying enterprise options and 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. This manual was initiated during a workshop for market facilitators held in Lushoto, Tanzania in March 2003 (see section 5.3.).

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. In the case of pyrethrum, 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. For further details on the ERI process see the Participatory Research Project's Annual Report 2003.

1.1.5 Development of a method for identifying market opportunities in a commodity chain

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Collaborators: Briceida Rojas (PDPM), Sandra Rivera, members of the youngsters association

The regional Colombian NGO “Programa de Desarrollo y Paz del Magdalena Medio” (PDPM) is supporting an “association of youngsters” located in Barrancabermeja, in the formation of a cassava-based enterprise and requested that the RAeD project execute a market study to identify market opportunities in the cassava commodity chain.

The methodology followed was the following:

- (a) Based on a previous market study conducted by CIAT, the RAeD Project focused on processed (frozen and refrigerated) convenience cassava products;
- (b) The market study was planned jointly by the RAeD project, PDMP and the youngsters association.
- (c) Secondary information was collected and analyzed;
- (d) Questionnaires were designed and sent to PDMP and the youngsters association for feedback;
- (e) The sample (types of actors to be contacted and geographical coverage) was jointly determined;
- (f) Interviews were conducted in Barrancabermeja, Bucaramanga and Bogotá with supermarkets, restaurants, institutions, and food processors. Representatives of the youngsters association participated in the work team;
- (g) Processing and analysis of information;
- (h) Preparation of the report, including results, conclusions and recommendations. Recommendations included a marketing strategy.

The market study of frozen and refrigerated convenience cassava foods demonstrated that (a) this cassava food category is growing rapidly, but is relatively small compared to similar potato-based foods; (b) these products are premium-priced and the main consumers have high incomes; (c) the actors in the marketing channel are willing to purchase quality products from the youngsters association, (d) the main products in this cassava food category are croquettes and large cassava fries, (e) Congelagro is the main enterprise in this category, with the “Rapi” brand.

The main RAeD Project recommendations were: (a) that the new youngsters enterprise should focus on marketing croquettes and large cassava fries initially in nearby markets; (b) plant capacity should be small but enough to capture a large portion of the relatively small nearby markets; (c) the group should receive adequate business training and coaching.

Activity 1.2 Information system on alternative trade (ATIS)

1.2.1. Launching of ATIS on project's Web page

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Collaborators: Sergio Mafla (consultant)

The Rural Agro-enterprise Development Project (RAeD) made an electronic survey of the information needs of different actors linked to rural agro-industry in Latin America. The survey was undertaken through the Prodarnet electronic distribution list of the Latin American and Caribbean Program for Rural Agroindustrial Development (PRODAR, its acronym in Spanish) and respondents were requested to indicate areas in which the supply of information was deficient. From this survey the theme of Fair Trade was selected as one of importance to users in providing information that will help in making rural agro-industry more sustainable through the identification of export opportunities.

The RAeD Information System on Fair Trade has taken four years to develop and is now available on the Internet. Its object is to offer technicians and nongovernmental organizations (and through these to small-scale rural producers) access to information on equitable trade movements.

The user will find up-to-date documentation about the Fair Trade movement, obtained from an exhaustive search of the available information on the Internet and from key contacts, on themes such as its history and evolution, how Fair Trade functions, the most important players, the beneficiaries, and new tendencies in the trade. Information on organic agriculture, which is directly related with the Fair Trade movement in the present market, is also available. Other information presented includes results of searches for the best links and on-line documents about Fair Trade and the organic movement, the development of a specialized glossary, news, and a calendar of agricultural shows and events. Among the components of the system is a directory that contains 160 organizations attached to the movement, from both the Northern and Southern hemispheres.

At present, this system (Spanish version) can be viewed on online in: http://www.ciat.cgiar.org/agroempresas/espanol/mercados/sistema_atis/inicio.htm.

The directory is being translated into English. In addition, an article on how to export, a list of the organizations of rural small-scale producers attached to the movement in Colombia, and some case studies of organizations related with the movement will soon be available online.

Output 2

Tools, methods, and information for developing appropriate postharvest technologies for small-scale rural agro-enterprises

The purpose of Output 2 is to generate information and tools that facilitate the selection and development of appropriate technology for the postharvest processing of agricultural products that have been identified as having potential for increasing income for smallholder farmers. Activity 2.1 seeks to develop user-friendly information systems that permit users' access to basic information required to take decisions about postharvest technology selection. Activity 2.2 is focused on adapting, developing, and implementing a set of participatory methods for undertaking postharvest technology research with clients and beneficiaries in a given socioeconomic context. Although these methods were successfully developed for preharvest research, the principles are only recently being adapted for the postharvest area.

Highlight

- The Rural Agro-industrial Research Group (GIAR, its acronym in Spanish) model for establishing local capacity among farmers and rural processors for accessing and adapting post-production technologies has been successfully tested with *panela* (raw sugar) production in the Cauca reference site in Colombia. The GIAR model has been incorporated into a project proposal developed by CORPOTUNIA, a local NGO partner with whom we developed the model, for improving the competitiveness of *panela* producers in small holder farming systems. The proposal, which has been financed by the Colombian Ministry of Agriculture, will serve to validate and refine the methodology used.

Activity 2.1. Develop inventories and systematized information for products and processes with market potential to define information and technology needs

2.1.1. Information System on Cassava Postharvest Management and Processing

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Collaborators: Rupert Best, Ángela María Arenas

The Rural Agro-enterprise Development Project (RAeD) took advantage of the opportunity for diffusion that electronic information offers to build an Information System on Cassava Postharvest Management and Processing. This involved compiling technical and economic data, an inventory of processing materials; equipment used in the processing, design of the processing plants, and investment costs. It has included information from other organizations that have worked for over 30 years in the development of cassava—the main source of calories for about 500 million people.

The main objective of this tool is to serve in the wide diffusion of the theme for researchers extension agents, and for cassava producers, rural micro-enterprises, governmental and nongovernmental planners, and all those interested in the topic.

The system subdivides into four components: (1) the crop, (2) postharvest management, (3) processing, and (4) use of information resources, where some of the documents on cassava published by our Project are listed with the most important of those circulated by other CIAT projects and related institutions.

At present, this system is online in Spanish at:

http://www.ciat.cgiar.org/agroempresas/espanol/tecnologia/sistema_yuca/inicio.htm

and in English at:

http://www.ciat.cgiar.org/agroempresas/espanol/tecnologia/sistema_yuca/english/index.htm (Figure 2.1.).

We expect this system will soon be housed in the Web sites of CLAYUCA and CIAT's Cassava Improvement Project. The release will be made with a marketing strategy that will be supported by the databases of CLAYUCA and the Cassava Improvement Project users.



Figure 2.1. Web page of the Information System on Cassava Postharvest Management and Processing (in Spanish and English).

2.1.2 Project initiated to develop local capacity for capturing relevant market and technological information in support of the integrated agro-enterprise projects in Cauca Department

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Collaborators: Ángela María Arenas

Information System for Rural Agro-enterprise Development (SIDER)

During processes that CIAT is advancing with small-scale producers in the Cauca department, a main limitation for rural agro-enterprise development was identified as the deficiency in availability of support services for the small-scale producer, such as technical and managerial assistance, training, credit, communications, and information services (see Section 4.2.1). Amongst these, access to information for correct decision taking and training prove indispensable.

In view of this need, over the past 15 months CIAT's Information and Communications for Rural Communities (InforCom) and Rural Agro-enterprise Development (RAeD) Projects, have been developing the SIDER Project. Its objective is to develop local capacities of Small-scale Rural Producers (PPR, the Spanish acronym), and in the organizations that support them, through guided use of new information technologies (Internet), media, and traditional channels of communication. It is hoped that, through these tools, these actors will be able not only to generate, access, interchange, and take advantage of useful information, but also socialize it with their communities through the construction of a communication network that strengthens support services in the framework of rural agro-enterprise development.

In 2003, SIDER has developed in parallel two of its principal areas: Electronic Information Product and Local Communication Network.

1. Electronic Information Product

This is a Web site being developed through a series of steps constructed to facilitate the active participation of the beneficiaries, mainly SIDER's communication groups and other organizations, which during the diagnosis phase and other initiatives have manifested their knowledge and information needs in enterprise and production themes. Results of the diagnosis and the process advanced in the project sites have permitted identification of four components for the Web site:

- (1) *Price information service*: This seeks to supply farmers with information on market prices for their area so that they can plan their production according to demand, program their harvests in seasons of greater profitability, and negotiate in conditions of better equity with traders. This service is divided into four components: (1) Selling price information for producers of the region, (2) Production costs, (3) Commercial contacts, and (4) Commercial structure for main products of the region.
- (2) *Agro-enterprise information resources*: A model, using information on *panela*, is being prepared; also, information is being considered on milk products, *mora* (blackberry), plantain, *anturios* (anthuriums), and cassava. This model is being constructed with technological (crop, postharvest, quality) and managerial information (sources of finance, credit, organizing experiences, legislation, among others).
- (3) *Our network*: A space developed by the communication groups that form the local network of SIDER. It presents information on its members, its process of formation and training, its community, its needs and projects, and the means of communication that will be produced.
- (4) *SIDER*: Describes the project, its objectives, results, and the general process.

2. Local Communication Network

This network, defined as *a group of persons and organizations trained to manage local information and integrated work for strengthening its social relations*, is developing in the municipalities of Caldone, Santander de Quilichao, and Suárez. In these municipalities, the Communication Groups, who make up one of the network actors, are made up of farmers or their relatives (indigenes, mestizos, and Afro-Colombians), aged between 14 and 70, are following a training plan and a work plan in communications.

This year, the training plan developed by the communication groups has permitted working principally on two aspects:

- (1) Consolidation of the groups through a workshop for group strengthening, which permitted the definition of its organizational aspects (group name, mission, vision, principles of the organization, and work plan), and inter-group meetings to establish

local relations, the construction of contents for the Web site, and analysis and reflection on the process; and

- (2) Development and improvement of their abilities in Internet management and in the production of broadcasts, not with intention of converting them into radio producers, but to "quiet" anxieties and support initiatives on the possibilities of this communication resource in this community (13 programs are being developed on themes such as crops, production, and commercialization and use of sugarcane sub-products).

With each group, a work plan in communications was defined that was directed at the construction of a strategic vision of communication for the area, to define and implement a local communication strategies. In developing the plan, the project has been socialized in the communities, and other actors have been joining the network, such as community organizations, governmental organizations (GOs), nongovernmental organizations (NGOs), formal and informal educational institutions, local communication media, and initiatives promoting rural development.

The linking of these actors to the network to facilitate information transfer, knowledge generation and project sustainability is supported by the institutional part of the project, which has made a departmental inventory of organizations, and prepared a folder presenting the project. At present, approaches are being made to the Centro Regional de Productividad e Innovación del Cauca (CREPIC) and the Faculty of Electronic Engineering and Telecommunications and of Social Communications of the University of Cauca.

Figure 2.2. shows the relationship between the electronic product and the organizations that make up the local communications network.

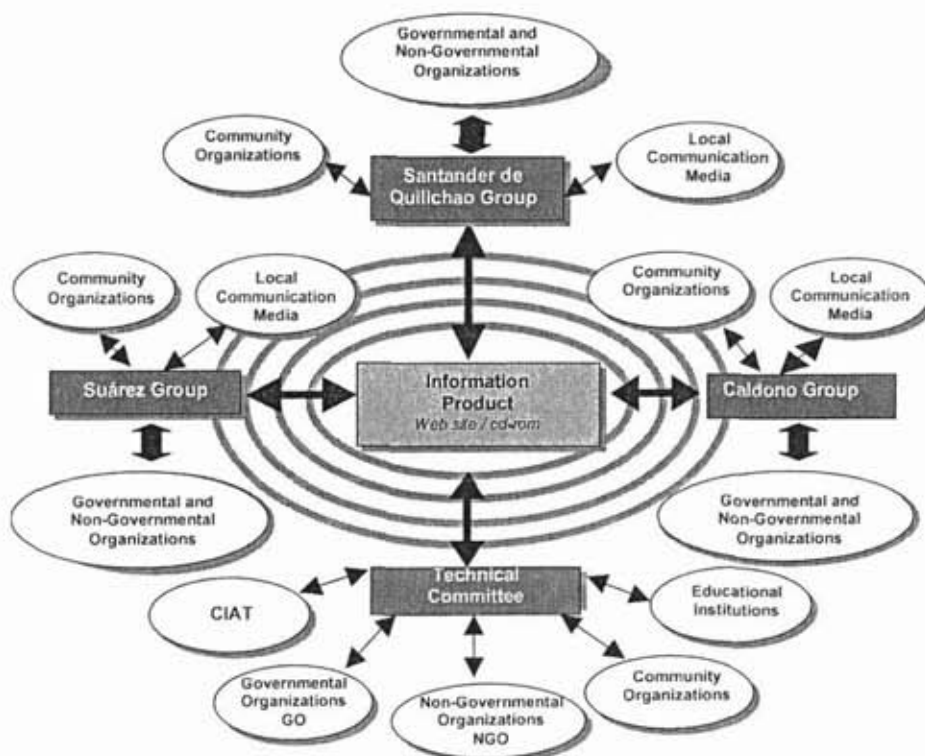


Figure 2.2. Organizational strategy of the Sistema de Información para el Desarrollo Empresarial Rural (SIDER) Project.

Challenges and Findings of the Process

- The development of an information system such as SIDER requires parallel lines of work, not only those contemplated in the two areas of Web site construction and the local communication network, but also work between communication groups and other organizations. This premise implies an effective initial development and resources that should be shared between new actors, who need to integrate as partners of the process. This means that the consolidation of alliances and agreements of both local and regional character becomes a priority aspect.
- The consolidation of local agreements and alliances requires greater presence in the municipalities to develop trusting and cooperative relations with the project. In this process, it is important to count on formal representation in these fora, that makes more dynamic the obtaining of resources and support for the work of the groups in the short term.
- Work with the communication groups requires multidisciplinary action, where the strategies for training on one theme (in this case communications) become part of a complex that includes many aspects of community development - team work, leadership, development of relationships of trust and cooperation, sustainability of groups, conflict management, support needed for operations, and the provision of infrastructure such as places for meeting, among others.
- Ethnic heterogeneity in the composition of groups, levels of schooling, and generation differences make work with groups complex, and makes difficult the consolidation of strategies for their strengthening and sustainability; for example, the interests of young people in moving to other places to study or work.

Activity 2.2 Adapt and refine participatory methods for improving processing efficiency and product quality for existing and new rural agro-enterprises

2.2.1. Rural Agro-enterprise Research Groups: A methodological proposal for research and adaptation of postharvest technologies

Contributors: Carlos Chilito, Jhon Jairo Hurtado (CIAT)

Collaborators: PRONATTA, Didier Alberto Serna, Eyder Montero (CORPOTUNÍA)

Over the past 2 years, the Rural Agro-enterprise Development (RAeD) Project and the Corporation for the Development of Tunia (CORPOTUNÍA) have developed the project "Integral improvement of the rural agro-industrial chain of *panela*, with small-scale producers of the municipalities of Santander de Quilichao, Suárez, and Caldono, northern Cauca department, as an alternative for improving income generation", financed by the Programa de Transferencia de Tecnología Agropecuaria (PRONATTA).

Through this project the RAeD has advanced development of a methodology for building local capacity in rural communities to validate and adopt technologies for their agro-industries, known as *Grupos de Investigación en Agroindustria Rural* (GIAR, Rural Agro-industry Research Groups).

The GIAR are a mechanism of active and real participation in the process of planning, validation, and dissemination of a technology to be incorporated into a productive activity. The GIAR are made up of producers and processors, who, together with

research or technology transfer organizations, prioritize the work criteria in an agro-industrial process. They participate in setting up trials, evaluations in processing units, discussion of results, and feedback to the community, which further the appropriation of the process within the rural population.

In the municipalities of Caldono, Santander de Quilichao, and Suárez, the *panela* activity generates more than 50% of family income. In these municipalities, sensitizing the community to the objectives of the project and of the GIAR methodology was carried out as a first step in its development. Then five GIAR were formed (three in Santander de Quilichao, one in Suárez, and one in Caldono), of 12 to 14 people each, with women participating in all groups. A further process of sensitizing was begun with these GIAR on the process of participative research, and their part as producers/researchers.

Participative and technical diagnosis, carried out in the community, identified difficulties faced by producers and the crop (low yields), in the processing (low capacity of traditional small furnaces, indiscriminate use of firewood and rubber), and in the markets (low quality and lack of appropriate presentation). Based on this diagnosis, four project objectives were established. They are presented and described below.

1. Prepare a portfolio of appropriate varieties for the production of good quality *panela*, managed with organic production criteria

In each municipality, the GIAR selected the main varieties used and defined criteria of the crop (high yield, absence of *pelusa* (small hairs that irritate the skin), resistance to pests and diseases), and the process (high sugar content, presenting organoleptic characteristics) for selecting a variety of sugar cane. The varieties selected were evaluated by farmers and processors, in the field and during processing, for the production of *panela* in block and powder form; three varieties were selected in Santander de Quilichao y Suárez, and two in Caldono. From the results obtained, three demonstration plots (one for each municipality) were established with the best varieties.

2. Adjust technology of CIMPA-type furnace models to local conditions

A technological proposal of a small furnace developed by the CIMPA Center and adapted by CORPOTUNIA, with the support of CORPOICA and other institutions, was utilized to improve two furnaces in Caldono, two in Suárez, and one in Santander de Quilichao (three of these with pyrotubular boilers and two with air-cooled boilers). The GIAR evaluated the traditional furnaces before improvement (low production, high consumption of firewood, subutilization of bagasse, great physical effort, and high cost of production), and then applying the technological proposal.

The average results obtained by the GIAR in the evaluations of the three municipalities showed: an increase of 117% in furnace A (air-cooled boiler), an increase in production from 21 kg to 65 kg of *panela*/hour, and a decrease in bagasse consumption of 37%. Furnace B (pyrotubular boiler) showed an increase of 209%, from 21 kg to 65 kg of *panela*/hour and a decrease of 37% in bagasse consumption. In both proposals, the consumption of tires and firewood is totally eliminated, and the *panela* obtained had good organoleptic characteristics (texture, color).

Training on the technological transfer process was given to three technicians of UMATAs, one Técnico Agricultor Extensionista (TAE) assigned to the project and elected by his community, two students from Cauca University (Agro-industry), two furnace builders, one metallurgic equipment builder (stills, boilers, pre-cleaners, receiving tanks, troughs), and a carpenter.

The technological proposal was transferred to 100 producers, familiar with the characteristics of the furnaces, who took part in the participative evaluations. Construction of the five ovens also has benefited more than 80 families, since the furnaces are community models in which, on the average, 15.2 families produce *panela*.

3. *Promote good manufacturing practices (BPM) in *panela* production that allow quality improvement*

In five "*panela* processing units" (sugar mills), implementation of the BPM proposal was co-financed, and transferred to about 60 families. As a result of the proposal's implementation, to date four more sugar mills have adopted it.

4. *Diversify the present product and develop new *panela* presentations, consistent with the market*

In local and regional markets, placing was achieved of 125-g and 25-g, round and flat presentations of *panela*, and the process was standardized to obtain lemon-flavored *panela*.

5. *Development of local capacity*

The points above have been presented to an average of 120 producers through demonstrations in the field and in the sugar mills. The RAeD Project and CORPOTUNÍA led the formation of a *panela* technical committee for northern Cauca, with the participation of state (UMATA), mixed (CORPOICA and ICA), and private (CETEC) organizations. After forming this committee, CORPOTUNÍA and CREPIC led a departmental initiative that applied the strategies for increasing the competitiveness of production chains with small-scale producers of the RAeD Project. As a product of this methodology, the committee achieved the financing of a project for 14 municipalities, through the Ministry of Agriculture.

2.2.2. Participative technological evaluation of different alternatives in *panela* furnaces for the small-scale producer of *panela* in northern Cauca department, Colombia

Contributors: Carlos Chilito, Jhon Jairo Hurtado, Juliana Andrea Rizo (CIAT)

Collaborators: PRODAR, Didier Alberto Serna, Eyder Montero (CORPOTUNÍA)

The technological proposal developed with the PRONATTA project, described under 2.2.1, and in which the GIAR groups took part, has permitted the integral improvement of the *panela* agro-industry chain of northern Cauca department, and the living conditions of its members. This alternative, because of its costs, is not within reach of lower income producers, with furnace of low capacity (average 19 kg of *panela*/hour) and high contamination (3 kg wood/kg *panela*, which represents about 10,800 kg wood/month consumed from about 800 kg of tires/month).

To address this situation, the RAeD Project and CORPOTUNÍA developed a project, financed for 1 year by the Fondo de Financiación en Agroindustria Rural (FIAR) of the Programa de Desarrollo de La Agroindustria Rural para América Latina y El Caribe (PRODAR), to offer a low-cost technological alternative of greater efficiency (more *panela*/hour), and less environmental impact.

The proposal was developed with GIAR support in Santander de Quilichao and Caldonio municipalities, where the improvement of two furnaces was co-financed. Furnace efficiency increased from 19 kg/h to 37 kg/h of *panela*; wood consumption decreased

by 62%, bagasse by 36%, and tires were completely eliminated. Thus, based on the technical results, profitability models were made of eight different technological alternatives.

After analyzing results with the GIAR, these were shared with about 60 producers of the two municipalities, which has motivated the community to improve its installations through its own funds or associations.

2.2.3. Local Agrifood Systems of *panela* sugar mills in the municipality of Santander de Quilichao

Contributors: Carlos Chilito, Carolina González (CIAT)

Collaborators: PRODAR, Didier Alberto Serna, Eyder Montero (CORPOTUNÍA)

CIRAD has advanced research on Local Agrifood Systems (SIAL, the Spanish acronym), which study existing interactions between local agrifood development and territorial dynamics. A meeting was convoked through PRODAR to finance case studies with these characteristics in Latin America. One of the case studies selected was the concentration of *panela* sugar mills in the municipality of Santander de Quilichao, Cauca department, Colombia, presented by the RAeD Project and CORPOTUNÍA.

Santander de Quilichao has a concentration of about 64 *panela* sugar mills, at different technological levels (from agro-enterprises producing 15 kg/h to some processing 70 kg/h) with structured social networks, and communal action formally only beginning to appear, but consolidated. The study's objective was to deepen the understanding of the SIAL's structure, functioning, and dynamics and, with the actors involved, to jointly construct and develop integral action plans that permit improving competitiveness. The most outstanding results of the study are presented below.

In this zone, transfer of knowing what to do has been mostly through the family, from grandparents to parents, and from these to their children; only on few occasions has it occurred between *panela* producers. In the last decade, the NGOs of the zone have actively participated in this transfer of technology process, in many cases as the transfer channel.

The SIAL is made up of diverse actors that can be grouped in the following categories:

▪ Main actors	▪ Producers: of sugar cane and <i>panela</i> (Negroes, <i>mestizos</i> , and indigenes)
▪ Public and private institutions	▪ NGOs: CORPOTUNÍA – CIAT (integrally support the process). UMATAs (Technical assistance).
▪ Backwards linkages	▪ Sugar cane producers
▪ Forward linkages	▪ Intermediate and wholesale traders (supermarkets) ▪ Final consumers
▪ Other linkages	▪ Local providers (oven builders, equipment builders) ▪ Transporters
▪ Collective actions	▪ Association of <i>paneleros</i> (Municipal union). The convergence of a large number of producers to the <i>panela</i> trade.

This SIAL presents important strengths, such as obtaining a 100% natural product as a result of using sugar cane from crops managed with clean production technology; a significant level of coordination and good relations between producers; the presence of local support services for the development of the AIR; and an important presence of

NGOs that support training, give technical assistance, and help attain resources for producers of the zone, among others.

At present, the commercialization of *panela* continues to be a highly important activating element that generates determining links between *panela* producers of the region. Involved in this is the association of *paneleros* that has an interest in defending the interests of the *panelero* union in procuring the best living conditions for its members. The *panelero* union feels supported in its different areas of development (organizational, technological, and marketing), AIR being the motivating factor.

Likewise, the improvement of technological processes through the processes of validation and technological adjustment by means of the GIAR continues to be a highly valuable element, bearing in mind that technology exists that has generated great interest in being adopted.

On the other hand, some weaknesses are presented, such as problems of public order that can directly affect the process of association, diversity in product quality, and low level of investment and production in most of the *panela* sugar mills.

The research of this SIAL is important not only for its scientific connotation, that is to say, the verification of hypotheses that are presented in turn to the Integrated Systems, but also for its importance as an axis of development in this zone that constitutes, directly or indirectly, a major source of employment of the rural sector in the municipality, and is an option for increasing the aggregate value of agricultural products, above all in such depressed zones as those described. For further information on this project see Section 3.2.2.

Output 3

Information, methods, and recommendations for the design and operation of efficient and effective organizational schemes for small-scale rural agro-enterprises and their support services

The purpose of Output 3 is to provide information, methods, and recommendations for the design and operation of efficient and effective organizational schemes for small-scale rural agro-enterprises and their support services. Two levels of intervention are contemplated. Activity 3.1 considers simplified business-oriented methods and tools for the internal organization and operation of existing and new rural agro-enterprises. Activity 3.2 looks at the social cohesion and integration of individual agro-enterprises, seeking to define options for achieving successful linkages to expanding markets and for organization of raw material supply. This research is carried out through cross-case and cross-country analysis, and interaction with partners in the reference sites, and provides useful information on lessons learned, best practices, and different options for the delivery of these services.

Highlights

- The PowerPoint presentations on business and marketing orientation and financial analysis of rural agroenterprises are among the materials most downloaded from CIAT's web page. These tools are being up-graded and packaged more appropriately for our clients.
- The research on social capital, collective action and community agroenterprise development has concluded with the preparation of policy briefs and the submission of a paper to *World Development*.

Activity 3.1 Design options and recommendations for the organization and operation of rural agro-enterprises

Tools and methods for strengthening the business and marketing orientation and financial analysis of rural agro-enterprise activities

3.1.1 Development of RentAgro (user-friendly software for calculating financial profitability parameters) completed

Contributors: Carlos F. Ostertag, Sandra Rivera, Juliana Rizo, Diana Paola Valero and Sergio A. Mafla (Consultant)

Collaborators: Fernando Rojas, Ángela Arenas, Germán Arias (Legal Advisor)

RentAgro is a product that responds to the generalized lack of information regarding cost structure and profitability levels for agricultural and agro-industrial projects and enterprises involving small farmers. Furthermore, many development organizations and small farmer organizations lack the necessary training to make financial projections and calculate profitability parameters for production projects. These activities are becoming more important with the increased demand for and use of business plans.

RentAgro, an interactive computer program, has been designed to help users without a financial background prepare financial projections and profitability models for agricultural and agro-industrial projects and enterprises. The software is a user-friendly inter-phase in Visual Basic between the user and an Excel electronic

worksheet, and includes a Help tool. The complete software product includes a CD-Rom with a pamphlet, a 100-page illustrated user's manual, and a technical systems manual.

The software features a step-by-step procedure to financial modelling, including sub-routines for calculating working capital, investment, interest expenses and residual asset values. Among the main components are: investment and working capital; sales volume; conversion factors; variable costs; fixed costs; interest and tax expenses, etc. The software will calculate numerous financial parameters, such as IRR, NPV, gross margin, net margin, break-even point, and ratios such as sales per labour costs, etc.

A multidisciplinary team including a business expert, two agro-industrial engineers, two computer programmers, a graphic designer, a lawyer and an editor have participated in the development of RentAgro.

After pilot-testing the software beginning 2003, several problems or bugs were detected, some of which have already been solved. The installation procedure for the main versions of the Windows operational system is still unresolved. Another major activity has been the re-conceptualization and editing of the user's manual, plus updating of the graphics.

The user's manual will include a separate glossary to explain basic financial terms and concepts in a simple and graphical fashion. Material from a PowerPoint presentation developed by C.F. Ostertag on development of financial profitability models will be used. This financial presentation is by far the most downloaded document in CIAT's web page in the last two years.

Once the final version of RentAgro (software and user's manual) is obtained before March 2004, the legal registration of RentAgro will be conducted and a marketing plan will be developed and executed. An ongoing discussion is whether this financial tool should be a free public good, and if not, what should be the basis for pricing it.

3.1.2 Development of a guide on the business and market approach for small rural producers

Contributor: Carlos F. Ostertag, Oscar A. Sandoval

Collaborators: Vicente Zapata

Most small farmer organizations in developing countries lack a sound business and market approach. The RAeD Project has repeatedly observed this in the field and during training workshops and institutional strengthening processes with the participation of small farmer organizations and rural development agencies. Many of these organizations are initially founded with a social and community character, but when they evolve into economic and business organizations, they generally do not understand the importance of acquiring a solid business and market approach to fulfill their objectives. Furthermore, they lack the necessary direction and information to incorporate this essential approach into their organizations. Even many rural development agencies lack the basic expertise and knowledge to promote the business and market approach.

Usually the successful performance of business activities is essential to provide long-term social benefits for members of these small farmer organizations. The purpose of this guide is to provide rural development agencies and farmer organizations with a simple manual or guide to help train them and their clients (small rural producers and

farmers), on what a business and market approach is and how they can acquire this key approach.

The procedure for developing this guide is as follows:

1. Based on a bibliographical review, the content of existing PowerPoint presentations on the subject, prepared by C.F. Ostertag, was improved and notes were added.
2. A general structure and format was proposed for the guide, with the support of V. Zapata from CIAT. The sections included are:
 - a. Importance of the business orientation in rural business development
 - b. The administrative process
 - c. The importance of the market approach
 - d. How to acquire a market approach
 - e. The marketing chain focus in rural agro-industry
 - f. Business tools for planning and promoting change
3. The content of the guide is being developed. Text drafts are reviewed and edited internally in the RAeD Project. An effort is being made to keep the language simple and provide examples related to rural agro-enterprises. In addition, the idea is to avoid guides that are too long.
4. Exercises and the necessary annexes will be developed.

It is anticipated that a final draft of this guide will be ready before March 2004.

3.1.3 Development of a guide on marketing basics for rural agro-enterprises

Contributor: Carlos F. Ostertag, Juan F. Barona

Collaborators: Vicente Zapata

Having a sound market approach is essential for adopting a business orientation. To have a market approach, the small farmer organization needs knowledge and expertise on marketing research, marketing intelligence and basic marketing concepts and strategies. As in the previous point, most small farmer organizations and even rural development agencies are lacking this.

Hence, the purpose of this guide is to provide rural development agencies and farmer organizations with a simple manual or guide to help train them and their clients (small rural producers and farmers), on the fundamentals of marketing for rural agro-enterprises.

The procedure for developing this guide is similar to the one presented in the previous point. The sections included in this marketing manual are as follows:

1. Introduction to marketing for rural agro-enterprises
2. Evolution of the business concepts
3. The marketing process
4. Management of the four marketing variables
5. The marketing plan

The use of this manual can be complemented with PowerPoint presentations on each of the marketing variables (product, price, distribution and promotion) plus other key marketing functions (market research, new product development), which have already been developed by the RAeD Project in previous years.

It is anticipated that a final draft of this guide will be ready before March 2004.

3.1.4 Development of a guide for preparing business plans for rural agro-enterprises

Contributors: Carlos F. Ostertag, Clara Feijóo

Collaborators: Vicente Zapata, Proyecto Emprender (Ecuador), Fundación El Alcaraván, CIPAV, COPRACAUCA (Colombia)

One of the results of the current trend in rural development towards a greater business and market approach is the growing demand for good business plans. This demand comes from credit and funding sources such as governments, commercial and development banks, and international cooperation. Unfortunately, although secondary information on this topic is widespread, the RAeD Project has observed that rural development agencies and small farmer organizations usually lack the necessary knowledge and skills to prepare good business plans. This observation has been made during institutional strengthening workshops and processes with NGOs and small farmer organizations in the past five years.

As a consequence, the RAeD Project had already developed PowerPoint presentations on the development of business and marketing plans, based on a bibliographical search. These tools have been used in previous institutional strengthening processes with development NGOs.

However, the RAeD Project has identified the urgent need for better training materials focused on rural agro-enterprises. The package or set of products proposed for this purpose is the following:

1. A special Business Plan format, accompanied by
2. A detailed guide for completing this format,
3. A PowerPoint presentation with notes on Business Plans, plus
4. A complete example of a Business Plan for a rural agro-enterprise, in this case the sugar-cane processing association of Santander de Quilichao, located south of Cali, in south-western Colombia.
5. RentAgro is an important component in this product package because it is a key instrument for developing financial projections and calculating several profitability parameters, which are essential parts of a Business Plan.
6. The RAeD Project's presentation on Strategic Planning can be used optionally, since it presents relevant material related to business plans (industry and business analysis, identifying strengths and weaknesses, opportunities and threats, stating the mission, identifying competitive strategies).

Work has already advanced in the development of products 1, 3, 4, 5 and 6. It is anticipated that the complete final draft of this training package will be ready before April 2004.

3.1.5 Improvement of the presentation on strategic planning for rural agro-enterprise

Contributors: Carlos F. Ostertag

Collaborators: Proyecto Emprender (Ecuador), CIPAV, Fundación El Alcaraván (Colombia)

Strategic planning is a key instrument for promoting collective action in rural areas and also a sound business and marketing orientation among rural organizations and agro-enterprises.

In year 2001, the RAeD Project had developed a PowerPoint presentation on this topic for regions, communities and rural agro-enterprises. This year this presentation was improved by adding new material, especially in the section related to agro-enterprises.

Together with the aforementioned presentation on "Development of Financial Profitability Models for Rural Agro-enterprises", the presentation on "Strategic Planning for Regions and Agro-enterprises" is the most downloaded document in CIAT's web page.

The RAeD Project recommends that training workshops on development of business plans should begin with a presentation on Strategic Planning because it introduces key concepts for the development of good business plans.

A guide or manual on strategic planning will be developed in 2004.

3.1.6 Case studies of successful rural agro-enterprises for national and export markets in Latin America

Contributors: Carlos F. Ostertag, Lizbeth Lasso, Mireille Totobesola, Luis Hernández; C. Wheatley (consultant)

Collaborators: Alvaro Nieto, Adriana M. Ochoa, Silvana Espinosa (consultants), Juan F. Barona, Trinidad Daza, Rupert Best

This work centers in the analysis of success factors for eleven rural agro-enterprises in Latin America. Eight of the case studies correspond to rural agro enterprises in South America that export part or all of their products, whereas three of the case studies pertain to rural enterprises in Central America focused on internal markets. Two versions are being complemented and edited. The shorter version, with summaries of the case studies, will be published, whereas the longer one containing the complete case studies will be placed in the project's web site as a public good.

Currently, the analysis, conclusions and recommendations are being revamped and a timetable for publishing the shorter version is ready. It is anticipated that the longer version will be placed in the project's web site in before February 2004 and the book containing the shorter version will be published before April 2004.

3.1.7 An appropriate method for strengthening the business and market orientation of small farmer organizations and agro-enterprises through action research

Contributor: Carlos F. Ostertag, Diego Izquierdo, Juan F. Barona

Collaborators: Walter Galindo (CIPAV), COOVERSALLES, Asociación de Productores La Montaña, Maria Eugenia Girón (FUNDEBASA), Corporación Consorcio

As already mentioned, the RAeD Project has identified that small farmer organizations in developing nations are lacking, in general, a sound business and market approach that seriously limits their ability to generate income and social benefits in a sustainable

manner. However, previous experience points out that the adoption of this business orientation by these types of organizations is usually a difficult and long-term process.

In consequence, since 2002 the RAeD Project is executing a scheme termed "Action Alliance" with two small farmer dairy organizations COOVERSALLES (Versalles) and Asociación La Montaña (Barragán and Sta. Lucía), both located in the Valle Department in southwestern Colombia. Funded by PRONATTA, and Corporación Consorcio (a Colombian consortium of development NGOs), and in collaboration with CIPAV (a local rural development NGO), Action Alliances focus on business training, coaching, accompaniment and learning.

The methodology for the Action Alliance scheme is as follows:

1. Presentation of the proposed Action Alliance scheme to the two small farmer organizations involved. Sometimes, participants suggest immediate changes in content and/or sequence of modules.
2. Establishment, in each site, of a guiding business-development committee. This committee acts as liaison between CIAT and other supporting institutions and the group.
3. Review of the content and sequence of the several thematic modules proposed in the scheme. Each module includes one or more weekly or bi-weekly workshops that are thoroughly documented, followed by the execution of tasks by participants, with coaching from the supporting institution. Results of the tasks are analyzed in the next module to promote learning. The original training-action modules included were the following:
 - a. Getting to know each other
 - b. Training in basic business concepts (business and market approach, marketing basics, a simple accounting method, financial profitability models)
 - c. Strategic planning
 - d. Leadership and team work
 - e. Rapid market surveys
 - f. Design of one or more business plans
 - g. Execution of one or more business plans

During the execution of the Action Alliance process, several modules were added, according to the needs of each of the farmer organizations. For example, in the case of Barragán and Sta. Lucía, a new organization had to be formed and, therefore, modules were added centered on analyzing alternative legal formats and selecting one, plus accompanying the group in the process of establishing the new organization. For both cases, a module on organizational strengthening was also added.

4. Definition of times and sites. The workshops can be conducted on a weekly or bi-weekly basis, with duration ranging from three to eight hours. Eight-hour workshops are best conducted in two days.
5. Execution of the various thematic modules. As already mentioned, some modules are added. In addition, the supporting institution (in this case the RAeD Project) also functions as a business advisor or consultant during the strengthening process and time has to be anticipated for this.

The following are some of the difficulties that have been encountered in the process: (a) in the case of Barragán, resistance to the concept of cooperative and demoralization due to the negative experience with the previous organization, COOAGALBASA; (b) resistance by many members to assume responsibilities within their organization; (c) the low or wide range of educational levels within each group; and (d) lack of continuity in participation by small farmers, especially during the initiation of the process.

Overall, the Action Alliance process has been relatively successful because COOVERSALLES is successfully selling cold milk for the first time; income from dairy production in the Versalles region has increased by at least 70%, the cooperative has expanded its membership by 30% and is actively searching for new markets for their milk and other agricultural products such as fruits and vegetables. In the case of Barragán, despite a recent failure and demoralization, the remaining group has founded a new association (Asociación La Montaña) and is actively seeking new markets for milk, fruits, tubers and vegetables.

The following points represent key learning during the process: (a) both organizations have required a leader or group of leaders to maintain commitment to training and action activities; (b) the need for- and positive impact of business training has been amply confirmed; (c) less-educated farmers tend to participate less; (d) the selection process of participants has to be improved to guarantee more continuity and commitment; (e) the Action Alliance process should be shorter and more intensive; (f) the relation between business and organizational strengthening is close but has to be better understood, and (g) group motivation and membership has increased once the organization has demonstrated business progress and results.

Both the Colombian Ministry of Agriculture and the Valle Department's Secretariat of Agriculture have expressed interest in adopting this methodology for strengthening the business and market orientation of small farmer organizations.

Activity 3.2 Design options and recommendations for enterprise linkages in the agribusiness chain

3.2.1 The Systemwide Program Collective Action and Property Rights (CAPRI)-funded study "Social capital, collective action, and community agro-enterprise development: understanding the linkages that contribute to poverty alleviation and sustainable natural resource management"

Contributors: Nancy Johnson (BP-1); Carolina González and Mark Lundy

Research under the CAPRI funded initiative finished in October 2002 with a final workshop between researchers from CIAT, CEGA and CCI in Cali. Fieldwork carried out by the Colombian partner organizations generated data on fifty different agroenterprise firms located in five distinct regions of the country. Quantitative analysis of the study results showed the relative importance of social capital as compared to other productive assets. When assessed as a function of firm income, for example, increasing levels of trust among market chain actors was at least as important to income as capital investments in machinery. During 2003 these data were presented both internally at CIAT as well as in a selected paper at the 25th International Conference of Agricultural Economists in Durban, South Africa 16-22 August. Short policy briefs in both Spanish and English were published and an article based on the analysis of the results submitted to *World Development* where it is in review.

The initial study is available at <http://www.capri.cgiar.org/pdf/capriwp26.pdf>.

3.2.2 Development of conceptual and methodological frameworks for the analysis of local agrifood systems (SIAL the acronym in Spanish), clusters, and networks

Contributors: Carolina González, Viviana Sandoval, Mark Lundy and François Boucher.

In 2002 SIAL work focused on the design and implementation of seven case studies in Ecuador (2), Colombia (3), Panamá (1) and Costa Rica (1). CIAT provided support for methodological design and field level implementation as well as backstopping to the individual researchers involved in the studies. Specific inputs included participation in the research design, training of individual researchers in the use of proposed tools and methodological backstopping in regards to the use of participatory methods. Final case studies were submitted to CIRAD in February 2003.

CIAT researchers Carolina González and Viviana Sandoval completed two studies in Cauca, Colombia. The first, carried out by Carolina González focuses on the case of small-scale *panela* processors in the Municipality of Santander de Quilichao while the second, led by Viviana Sandoval, revisits the case of cassava sour starch. Key results show that while these cases meet the majority of necessary conditions to be considered a SIAL they present severe limitations in terms of collective action, organization and ability to compete in a globalized world. Both cases will be included in further publications on the SIAL topic led by François Boucher of CIRAD.

Output 4

Institutional models and policy options for establishing and strengthening rural agro-enterprises and their support systems at the microregional level

The objective of Output 4 is to generate appropriate models, instruments, and policies to facilitate the process of establishing a sustainable agribusiness system at the microregional (municipality, watershed, etc.) level. These systems are composed of dynamic, market-oriented agro-enterprises and businesses, and appropriate local support services, both of which build upon local leadership and external support. In the process of building the local agribusiness system, it is important to maintain an updated business portfolio, create and strengthen local capacities, and design and execute corresponding research and pre-investment projects.

Activity 4.1 focuses on studying methods for integrating production, post harvest processing, and marketing functions around a given product or commodity with appropriate organization structures and support services.

Activity 4.2 centers on the design and strengthening of a local support system for the development of rural agro-enterprises within a given territory. This system, made up of business development support services, includes support for new business ideas and a mechanism for identifying, setting priorities, and developing market opportunities through the execution of integrated agro-enterprise R&D projects.

Highlights

- Field guides for Integrated Agroenterprise Projects (IAPs) and the formation of local interest groups for rural enterprise development published in Spanish. These are being translated into English for validation in E and S Africa and Asia.

Activity 4.1 Design conceptual frameworks and methodological options for organizing and integrating production, processing, and marketing functions for the establishment and/or strengthening of rural agro-enterprises

4.1.1 Conceptual framework for rural enterprise development within a territorial context developed and disseminated.

Contributors: Mark Lundy

Collaborators: Carlos Ostertag, Rupert Best, Verónica Gottret

The project developed a set of principals for rural enterprise development and a logical framework of interconnected methods and tools to achieve this goal. Key principals for successful rural enterprise development identified by the project include: (a) an entrepreneurial, market oriented focus; (b) participatory decision-making with partners; (c) a focus on strengthening existing local skills as well as building new ones; (d) a search for consensus among multiple actors; (e) equal access to opportunities for participating groups, and; (f) social, economic and environmental sustainability.

The territorial approach proposed by CIAT seeks to contribute to the development of local capacities to facilitate rural enterprise development in a flexible, dynamic and coordinated fashion. This approach includes four components:

1. The identification and strengthening of a working group composed of diverse local organizations with common goals and strategies for rural enterprise development.
2. Identification, management and development of market opportunities available to the region.
3. Participatory production to market chain analysis, consensus building with diverse actors along the chain and design of a shared strategy to increase chain competitiveness.
4. Identification and promotion of appropriate and sustainable business development services and markets for these services for the region.

The entry point for this approach is the identification and consolidation of a local working group. The other areas of work are then subsequently developed in collaboration with that group.

Formation of a local working group

The formation of a working group around the theme of rural business development is an iterative process that varies depending on the organizations present in the area, previous experiences and the necessities of the local population. In our experience, these groups usually include strong representation from producer organizations and NGOs with somewhat lesser participation by public and private sector actors. Membership in the interest group and the organizational form are decided by the participants, as is the demarcation of the territory in which the group seeks to work. To facilitate these decisions, two specific activities are carried out with the working group at the beginning of the process. First, a shared profile of the territory including differentiated livelihood analysis, biophysical, social, organizational, institutional, economic and political concerns is developed with the use of participatory rural appraisal tools and existing secondary data. The collection and analysis of this information provides an arena for consensus building and eventually decision-making among group members. Based on this information, an action plan is developed which includes the elaboration of a shared vision, mission and values, organizational structure and rules and an initial action plan. At this stage, topics like market orientation (producing what can be sold as opposed to selling what we produce), entrepreneurship, participation and vertical integration versus business alliances are debated. This process allows group members to discuss and analyze past experiences and decide on what actions are appropriate in the future. Once the diagnostic is carried out and the action plan approved, a final step in this process is the design of a simple, needs based monitoring, evaluation and learning system.

Identification and management of market opportunities

Once the working group exists, one of the first questions is what products and/or areas are most likely to generate positive results for the region. Answering this question requires two types of work: specific market studies and the on-going management of market intelligence. In the first area, CIAT has developed a market opportunities identification manual (Ostertag 1999) which seeks to respond to three main questions: (a) what products – either existing or novel – show strong market demand in terms of increasing volumes and prices; (b) which of these products can be produced in the region given the biophysical characteristics, infrastructure, access to productive resources and existing livelihood strategies; and, (c) of those products identified in (a) and (b), which are of interest to smallholders. The end result is a portfolio of options, which respond favorably to the three questions. The size and diversity of this portfolio varies depending on market conditions, biophysical and social feasibility and farmer interest but normally includes from five to thirty possibilities.

In the area of market intelligence, CIAT seeks to build local capacity to generate, manage and disseminate key market information on a permanent basis. This capacity involves not only direct market visits by interest group members but strategic alliances with national market information system programs and the elaboration of dissemination tools appropriate to the rural context.

The range of tools developed by CIAT in this include the following:

Table 4.1.
Market Opportunity and Intelligence Tools

Aspects	Tools			
	Market Opportunity Identification	Rapid Market Study	Market Visits	Local Market Intelligence System
Duration	3-5 months	1-2 months	1-4 weeks	3-4 months start-up
Frequency	Periodic	Periodic	Periodic	Permanent
Thoroughness (1-5)	4 - 5	2 -3	2	2 - 4
Complexity (1-5)	4 - 5	2 - 3	1 - 2	2 - 4
Local capacity versus external facilitation (%)	30/70	50/50	70/30	Initially 20/80, then 50/50
Focus on new products (1-5)	4 - 5	3	2	3 - 4

Source: CIAT Agroenterprise Development Project

The end result of a market opportunity identification study is a basket of possible options for development in the selected region. At this stage, the working group presents these options to farmers representative of diverse livelihood strategies who prioritize these options based on local criteria in a participatory fashion. In the past, local selection criteria have included strength of market demand, product profitability, environmental impact, perceived ex ante development impact, organizations interested in the product among others. These criteria vary by region and livelihood group. Using local criteria the market options are ranked and a decision made on which option(s) to pursue first.

Integrated Agroenterprise Projects

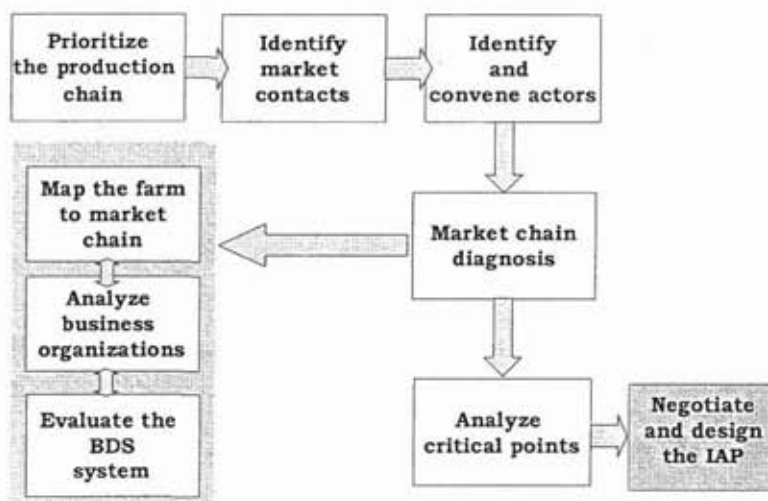
At this stage the working group moves into the participatory analysis of the selected production chain using the *Strategies to Improve Chain Competitivity with Smallholders* field guide developed by CIAT (Lundy, 2003). This method facilitates the analysis of the market chain by the actors directly involved and, through this process, generate collectively owned information and a consensus for action. The scope of this analysis is somewhat broader than a typical sub sector approach in that includes not only the farm to market chain as such (production, post-harvest/processing and marketing) but also two important cross-cutting areas: business organization and the provision of business development services. Business organization and support services present in a farm to market chain are key to understanding the possibility of improving chain

performance through the effective use of existing skills and services as well as identifying important bottlenecks that inhibit such improvements.

The method starts after the selection of priority market chains based on local criteria and information generated in the phase of market opportunity identification. After that, specific market contacts are identified and a simple database constructed with relevant information about both market contacts (name, address, phone and others) and product conditions (quantity, quality, frequency, price and presentation). This is complemented by a broader identification of relevant actors in the phases of production, post-harvest and/or transformation, commercialization and the provision of business development services to participate in the analysis of the chain. Information is gathered on the farm to market chain with representatives from the different links using participatory tools, focus groups and semi-structured interviews. Initially each the participants in each section of the chain work in separate small groups in an effort to avoid undue influence by relatively better-informed actors. The information is reviewed by the actors, who identify and analyze critical points and propose solutions. At the end of the process, facilitated consensus-building workshops are held where all information is shared and discussed with the various actors with the goal of identifying positive synergies among actors, common interests and critical points where strategic investments can achieve high returns.

Figure 4.1. shows the steps used in this analysis.

Figure 4.1.
Steps in the IAP method

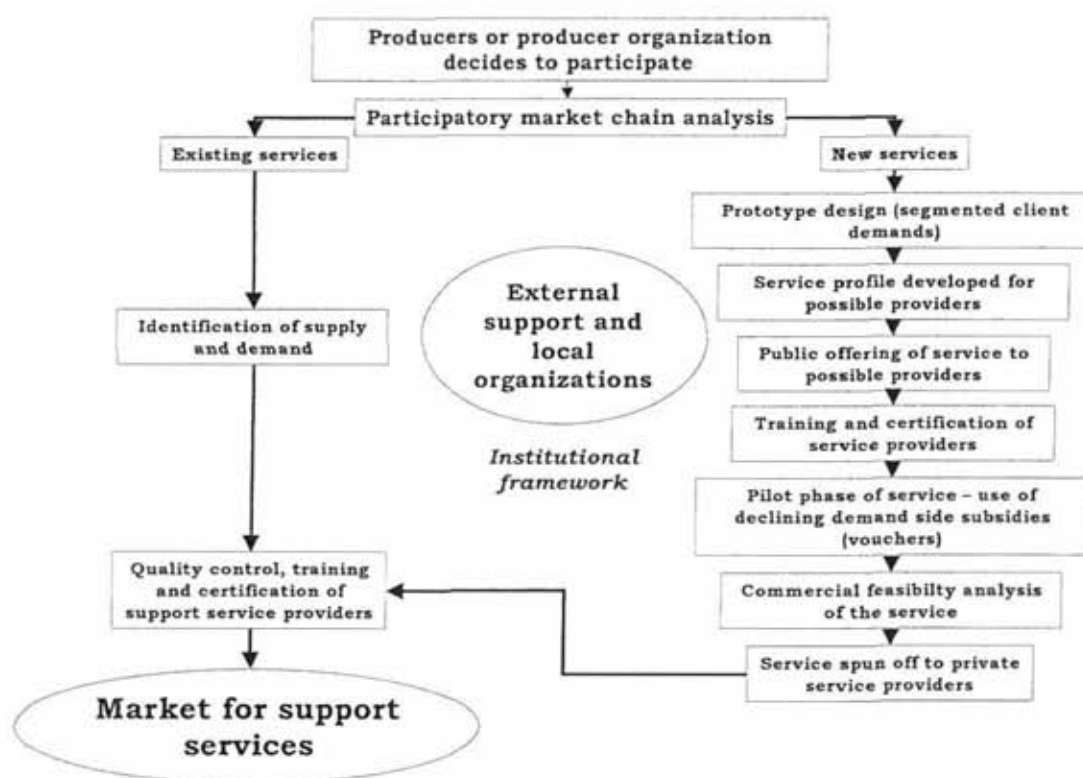


After the process of negotiation with actors occurs, an action plan is drafted which includes both research and development activities in the short, medium and long term. The goal of this action plan is to improve the competitiveness and sustainability of the chain through the development of a common business development vision among various actors. Once a common vision has been established, specific development or research activities may be disaggregated into discrete projects depending on funding opportunities and donor interest while conserving a clear idea of where everything fits together.

Provision of appropriate and sustainable Business Development Services

A final area of work in the CIAT approach is the provision of appropriate and sustainable Business Development Services or BDS. Based on the needs identified in the product specific farm to market chain analysis, a third CIAT methodology is currently in development to promote the provision of effective BDS in rural communities. This focus covers financial, non-financial, formal and informal services and seeks to build functional markets for BDS that link specific demands with suppliers either at the local, regional or national level. By using the farm to market chain as a framework, the BDS services selected for strengthening or implementation can be clearly and concretely identified, quantified and impact measured. Fieldwork is on going in Honduras and Colombia on this topic but the basic focus is shown in Figure 4.2.

Figure 4.2.
Creating markets for BDS in rural communities: methodology



Some critical points in the area of BDS are the following:

- BDS should be seen as a for-profit activity that complements on and off-farm employment. Potentially, functional BDS markets could not only increase local economic competitiveness but also provide important opportunities for semi-technical employment in rural areas.
- Identification and inclusion of informal service providers (producer experts in technical assistance, for example) as well as formal (technicians and extensionists) in market and product demand development. An effective local BDS market will probably consist of many informal actors supported and complemented by a lesser number of formal ones.

- Need to improve the effectiveness of BDS, both formal and informal, with the goal of increased competitiveness and sustainability. BDS should help facilitate positive gains in competitiveness rather than maintain the status quo.
- Use of partial and targeted subsidies to promote innovative services. Subsidies should be focused on partially covering start-up costs (market studies, capacity building, promotion, etc.) and assessing and disseminating the impact of the services rather than subsidizing their direct provision. Services should strive for profitability but some may require on-going support given their strategic nature.

Initial work is being carried out in with support from the New Zealand Agency for International Development (NZAID) in this area in Honduras and Colombia.

This conceptual framework continues to be validated with partners in Latin America, S and E Africa and SE Asia.

4.1.3 Preparation of a field guide for the formation of working groups in rural enterprise development

Contributor: Mark Lundy

Collaborators: Verónica Gottret, Rupert Best, Coletah Chitsike (CIAT Africa), Félix Jiménez (CARE Nicaragua), María Elena Mendoza (CARE Nicaragua), Carlos Ulises Olivas (CARE Nicaragua), Tom Remington (CRS Africa).

An additional part of the tool kit for rural enterprise development in a territorial context is the field guide for working group formation. This text – currently in a working draft form – has been designed for use by development partners in Central America and Africa in the formation of local working groups for rural economic development. As such the text is undergoing revision and improvement based on the results of field activities in Nicaragua and East Africa. An improved version of the guide should be available for wider dissemination and innovation in November 2003. The following box provides an initial idea of the content of the guide and how it will be eventually distributed by CIAT.

Table 4.2.

Details of the Interest Group Formation for Rural Enterprise Development Manual

Objective: Provide a linked series of methodologies for the formation of interest groups in rural enterprise development within a territorial context.	
Contents:	
Section 1 – Identification of relevant stakeholders, formation of an interest group and delimitation of the territory.	
Section 2 – Getting the lay of the land: tools for participatory analysis of livelihood strategies and the rural enterprise potential and limitations of a territory.	
Section 3 – Consensus building: reaching agreement on vision, mission, principals and an initial action plan for rural enterprise development.	
Section 4 – Building a monitoring, evaluation and learning system.	
Date available: 2003	Languages: Spanish, English
Dissemination plans: Will be available in printed form from CIAT or in electronic format on the Agroenterprise Project web site (http://www.ciat.cgiar.org/agroempresas/). Draft portions of this manual have been used in training courses in Latin America and Asia since 2000 and will be further developed for upcoming work in Central America and East Africa.	

4.1.4 Development of a methodology for executing rapid baseline studies related to rural development

Contributor: Carlos F. Ostertag, Diego Izquierdo

Collaborators: William Cifuentes (Corpotunia), Verónica Gottret, Sandra Rivera

Related to 4.1.3 above, the objective of this activity was to propose and implement a methodology for executing rapid baseline studies. This request came from Corpotunia, a local development NGO that was hired by the Interamerican Development Bank (IDB) to execute an income-generating project in the hillsides of the Cauca Department, in southwestern Colombia. The terms of reference required the preparation of a baseline study for five towns in this region, one being the control. Similar studies will be conducted after the first and second years of project execution and will be the basis for monitoring and evaluation of project impact.

The RAeD Project proposed the following methodology, which was executed in two months:

- (a) Planning of baseline study with Corpotunia, involving a sample of 100 small farmers and including the design of a summary matrix;
- (b) Collection and analysis of secondary information (municipality development plans);
- (c) Design of questionnaires;
- (d) Determination and location of the sample;
- (e) Contact and training of local interviewers;
- (f) Collection of primary information;
- (g) Contact of person responsible for processing information
- (h) Preparation of a 40-page the final report with the summary matrix and conclusions and recommendations

Lessons learned include the following: (a) interviewers should be local to speed the process and obtain more reliable information; (b) the application of the questionnaire should take a maximum of 40 minutes; (c) open-ended questions are essential, although they are more difficult to process; (d) the person in charge of information-processing has to dedicate 100% of his time; and (e) this same person should participate in the questionnaire design.

The experience of this activity will be incorporated in the design of appropriate base line information surveys that can be used within or complementary to the guide on interest group formation (see Section 4.1.2 above).

4.1.4 Empirical experiences on the design and development of Strategies for Improved Chain Competitiveness

Contributors: Mark Lundy, Marco Antonio Vásquez, William Cifuentes (CORPOTUNIA)

Collaborators: Benjamín Ferreira (Comité Local para el Desarrollo Sostenible de la Cuenca del río Tascalapa [CLODEST])

The formulation of a strategy to improve chain competitiveness is the result of the application of the methodology of the same name. Such a strategy constitutes an action plan for the improvement of the competitiveness of a value chain formulated with the participation and perspectives of multiple stakeholders. It may include activities in both research and development in production, post-harvest / transformation, marketing, business organization and/or support services. Final strategies include short, medium and long-term activities, employ local or external resources and may be presented as a comprehensive plan or in discrete segments to potential financing agencies. This method facilitates the development of a common vision among value chain actors for the long-term, systematic strengthening of their economic activity. A total of twenty-six strategies for increased competitiveness have been formulated since the design of the method began in 1999.

A Field Guide was published in Spanish in October 2003. As a result of direct fieldwork, the following principals have been identified as critical for the formulation and implementation of competitiveness strategies (Table 4.3.).

Table 4.3.

Principals for the formulation of Strategies for Improved Chain Competitiveness

A successful strategy should:

- Have a strong business orientation, with the goal of satisfying market demands in terms of quality, quantity, price and availability.
- Include a holistic view of the value chain including production, post-harvest, processing, marketing, business organization and the provision of support services.
- Promote an explicit focus on integrating functions from production to consumption of the product to create greater systemic competitiveness.
- Search for increased synergies through coordination between different actors, including formal and informal private firms, NGOs and the public sector.
- Facilitate the participation of key representatives of all stages of the value chain, including service suppliers, in the design and implementation of the strategy.
- Combine research and development activities in a common framework and coordinate activities on both fronts.
- Include short-, medium-, and long-term activities that mix local knowledge, capacity and resources with external ones to improve the competitiveness of the value chain.

4.1.4 Preparation of a field guides for Strategies for Competitiveness

Contributor: Mark Lundy

Collaborators: María Verónica Gottret, William Cifuentes (Corpotunia), Carlos Felipe Ostertag and Rupert Best

After a various field level experiences – as detailed above – the PDAER team developed a field guide on for the design and negotiation of Strategies for Improved Chain

Competitiveness. This guide – available on the Project's Web Site – provides a systematic set of methods and tools designed to facilitate a participatory multiple stakeholder analysis of a specific value chain. End users of this field guide are expected to be extension agents and agencies, NGOs and others interested in promoting rural enterprise development within a territorial context.

Use of this guide with development partners in Central America and Africa commenced in 2003 under the assumption that the text as such is a general guideline of what could be done to promote collective action to improve value chain effectiveness and not a 'recipe book' to be strictly followed. Within the context of Learning Alliances (see Output 5 for further details) it is expected that this tool will be adapted to the needs and capacities of local partners and thus lead to innovative learning processes in the area of value chain analysis.

4.1.5 Development of a methodology for accelerating the design of regional chain-strengthening projects

Phase 1

Contributor: Carlos F. Ostertag, Diego A. Izquierdo and Luis Hernández
Collaborators: Emma Gutiérrez and Mario Goethals (CTB), Raúl Navas and Fernando Guamán (FEPP), Hipatia Nogales (SESA), Norma Rodas (Ministerio de Agricultura y Ganadería - MAG)

Phase 2

Contributor: Alain Laigneaux (CTB-HQ), Carlos F. Ostertag and Luis Hernández
Collaborators: Emma Gutiérrez and Mario Goethals (CTB), Raúl Navas (FEPP), Hipatia Nogales (SESA)

The Belgium Technical Cooperation of Ecuador (CTB) requested our collaboration in analyzing four segments of the meat chain in northern Ecuador (cattle, pigs, lamb and guinea pigs) or Phase 1, with the purpose of formulating an IAP to strengthen this key food chain in northern Ecuador (Phase 2). Since CTB imposed time restrictions for this IAP design process (three months), the RAeD Project had to develop and execute an alternative methodology that could not encompass meetings with all of the actors in the meat chain. Therefore, the methodology considered meetings with small producers and separate interviews of the key actors, including the support system, along the four segments of the meat chain. However, it should be noted that several actors along the meat chain did meet and participated during the planning workshop of Phase 2.

The methodology followed for the analysis of the meat chain segments (Phase 1) was the following:

- (a) Establishment of the research team;
- (b) Development of a graphical hypothesis relative to the links and actors in the Ecuadorian meat chain;
- (c) The basic strategy was to characterize the actors in each of the chain links and to study their relations with actors in the previous and next links;
- (d) Design of questionnaires and interview guides;
- (e) Design and execution of a parallel study on meat and animal flows from the Colombian border;

- (f) Meeting in Quito with CTB and collaborating government and non-government agencies to plan the study and gather key information on the meat sector;
- (g) Field work involving interviews in Ecuador with actors participating along the four meat segments;
- (h) Meeting in Quito and Ibarra with collaborating institutions to inform of progress;
- (i) Definition of report structure and information processing at CIAT;
- (j) Development of a presentation summarizing the key results of the meat chain study, including characterization and diagrams of the four meat chain segments, key bottlenecks along the chain segments, and the corresponding recommendations;
- (k) Preparation of a draft report;
- (l) Two workshops with local institutions and experts to present key results and obtain feedback;
- (m) Modifications and improvements of the final report
- (n) Review of final report by the RAeD project and CTB;
- (o) Preparation of final report

The methodology followed for Phase 2, centered in the formulation of an action plan to strengthen the four meat chain segments and eliminate key bottlenecks identified, was as follows:

- (a) Establishment of working team for this phase (CTB, two members of the RAeD Project plus two local experts);
- (b) Coordination meeting in Quito to define the format of the formulation report, timetable and responsibilities;
- (c) Workshop with small meat producers, requested by FEPP (a national NGO that had originally suggested this project formulation);
- (d) Planning of workshop for developing the project's logical framework; the basis for this workshop were the results of Phase 1 (main constraints per chain link and proposed strategies for their solution);
- (e) Execution of the three-day workshop in Quito with two facilitators and development of the logical framework; participation of development agencies, small meat producers, directors of state-managed meat-processing plants, and government agencies.
- (f) Preparation and presentation of the four-million-Euro project profile for strengthening of the meat chain in northern Ecuador, for approval by the governments of Ecuador and Belgium;
- (g) Preparation of the final formulation report by CTB and the RAeD project. The resulting project has a budget of four million Euros.

The experience gained by the RAeD team through participation in this type of activity provides us with an important insight into the demands of major financing agencies, and their needs in terms of tools adapted to different circumstances.

Activity 4.2 Develop guidelines for the design of local support systems for promoting agro-enterprises that contribute to sustainable development at the microregional level

4.2.1 Feasibility study for the local provision of support services for rural agro-enterprises in Yoro, Honduras and Cauca, Colombia

Contributor: Mark Lundy, Carlos Ostertag

Collaborators: Chris Wheatley (consultant); Rupert Best; William Cifuentes (CORPOTUNIA); Rodrigo Vivas (CIPASLA); Marco Antonio Vásquez; and Carlos Chilito.

This activity began at the end of 2002 as part of a new NZAID funded project to promote the provision of sustainable market based support services to local value chains in Cauca and Yoro.

During the implementation of the current agroenterprise projects in the communities the inadequacies of support services have become a major constraint to the long-term sustainability of the new enterprises. The traditional public sector service providers in rural areas (e.g. public sector agricultural extension) are no longer present (due to privatization and a focus on larger scale farmers who can afford to pay consultancy fees), while other services have never been available locally through the public sector (e.g. marketing services). Funds were available in the existing project to perform a rapid diagnosis of existing service providers, and this revealed that some demand-based services are provided informally, but are of poor quality. The potential for a more demand-based provision of local services could exist, but the existing project (of the consortia and CIAT combined) does not include this within its scope (beyond the initial diagnosis already conducted). Hence, this work started with a feasibility study for the establishment and initial operation of local support services for small rural agro-enterprises, which include pilot schemes in Yoro and Cauca.

During early 2003, local consultants in both Honduras and Colombia implemented a CIAT designed tool to analyze and understand local markets for BDS both from the supply and demand side. Participatory tools were used with selected supply chains – five in each site – as well as with a number of existing rural enterprises and both for profit and not for profit service providers. The novel nature of the work led to a slower than expected implementation process in both sites. However, the final results of the studies – which feed into the design of strategies to improve the provision of BDS in each site – are complete and highly relevant.

Results from this work in both sites paint an interesting picture of the current status of BDS in these rural communities. For profit service firms in both sites tend to focus on tangible services with generally acceptable results but significant limitations in coverage due to transaction costs, distance and the ability of the client base to pay for the services. Not for profit service providers offer less tangible services at little or no cost for their clients but have severe coverage limitations (limited to project beneficiaries) and serious sustainability problems (service provision is highly dependent on donor funds). In both sites, a clear gap exists between demand and supply. While demand – as described by diverse clients – moves towards “non-traditional” services such as legal consulting, accounting, processing, new product development and marketing, most service providers tend to continue to offer traditional, generic services with little or no innovation.

A second phase of the project will begin in late 2003 under the aegis of promoting better links between service demand and supply. To this end, project funds will be targeted

towards pre and post-service areas through a competitive grant mechanism managed by local agroenterprise working groups. Activities eligible for pre-service funding include the preparation of a service providers guide, market studies for services, capacity building among new or existing service providers, acquisition of tools or materials, service promotion and short pilot provision phases. Post-service funding is focused on evaluating service effectiveness, disseminating these results to clients and facilitating more effective communication between suppliers and their clients. In both cases, project funding will cover only a percentage of total cost with the remainder to be picked up by the providers themselves.

During 2004, the methods used in this project and the initial results obtained will be systematized, a draft field guide prepared and a training course run in Latin America.

4.2.2. Analysis of a rural business development scheme in Honduras (AGROPYME)

Contributor: Carlos F. Ostertag, Alberic Hibon (Pymagro/SDC Peru), Edwin Rodriguez (consultant)

Collaborators: José L. Sandino (SDC Nicaragua); Michael Velten, Iván Rodríguez, Cristiana Gamero (AGROPYME)

SDC requested that the RAeD Project lead a three-member External Review (ER) team for this innovative SDC-funded program, AGROPYME, which is being executed by the international Swiss NGO Swiss Contact in Honduras. AGROPYME represents an innovative scheme for promoting rural business development, with objectives and strategies similar to those of the RAeD Project's, especially regarding the emphasis on a business and market orientation, and on the need for strengthening local RBDS. Therefore, this request was considered to be very pertinent for supporting the RAeD Project's research agenda.

The methodology followed by SDC and the ER team was the following:

1. SDC prepared the Terms of Reference and selected the ER team (three international consultants);
2. A briefing meeting was conducted and key documents were handed to the ER team.
3. The ER team defined a work plan, responsibilities and a report structure, the latter based on SDC's Terms of Reference.
4. The ER team carried out fifteen interviews with AGROPYME staff, institutional partners, SMAEs, and NFS providers, and visited some of the program's sites in Honduras.
5. Secondary information consulted included program reports, plans, promotional material, contracts, letters, agreements and information on cases and projects.
6. The ER team met on several occasions to structure the final report's conclusions and recommendations.
7. The RAeD project representative, head of the ER team, prepared the final report and a PowerPoint presentation, both submitted and accepted by SDC.

The objective of AGROPYME is to improve the competitiveness of small and medium transformation and marketing enterprises in Central America and to strengthen the supply of non-financial services (NFS) supporting these agro-enterprises. The objective of the First Phase (Orientation), which started at the end of 2001, is to define and validate working hypothesis, strategies and methods to improve the competitiveness of small and medium agro-enterprises (SMAEs) and to generate synergies between supply and demand of NFS for the processing and marketing of agricultural and non-timber forest products, taking into consideration environmental and gender aspects.

The AGROPYME team is very compact, comprising one international staff, two national support staff, and a technical back-stopper. The activities conducted by AGROPYME include the following:

- To strengthen SMAEs, favoring those that can have a potential impact on small-farmer households in marginal areas.
- To strengthen the supply of specialized NFS for SMAEs in the processing and marketing of agricultural, animal and non-timber forest products.
- Participation in the coordination and exchange among similar programs and projects, as well as strengthening of a policy dialogue.

The hypotheses implicit in the AGROPYME strategy, proposed by the external review team, are as follows:

- Hypothesis 1. It is necessary to strengthen the supply of NFS to promote competitiveness of the SMAE sector.
- Hypothesis 2. In Honduras, there exists a sufficiently large base of agricultural and agro-industrial SMAEs to stimulate the market for NFS. This hypothesis was rejected early in Orientation phase and forced a change in the program's strategy.
- Hypothesis 3. A subsidy for the demand and supply of NFS is required due to the low buying intention of SMAEs and the low quality of available NFS.
- Hypothesis 4. If NFS are freely hired by the demanding SMAEs and under a co-financing scheme, their pertinence and quality will increase significantly.
- Hypothesis 5. If there is good information on final product market demand and a good business plan, it is feasible to access available financial services or donations.
- Hypothesis 6. It is possible to substitute part of the fresh vegetable imports with a competitive supply from local small producers.
- Hypothesis 7. It is possible that groups of SMAEs increase their income, under contracts with companies specializing in the export of products for niche markets.

The general AGROPYME strategy encompasses the following:

- Focus on SMAEs based on explicit selection criteria.
- Identification of opportunities for SMAE products (import substitution, export windows and market niches)
- Business plan development, as an instrument for obtaining financing from other sources, such as the official banking system and international cooperation.
- Strengthening of SMAE's management capacity.
- From an inventory of NFS providers, towards the strengthening of some NFS providers according to demand from SMAEs.

The main recommendations offered by the External Review Team for the improvement of AGROPYME were the following:

- More emphasis should be placed in the validation of the implicit hypotheses, methods and in learning processes;
- The program should address environmental and gender issues in a more formal fashion;

- Product chain analysis to identify key bottlenecks should be included/improved before or during business plan development.
- The program should work in at least one case involving processing of agricultural products.
- The MOI process should be more structured and systematic.
- The program should place more emphasis on coaching and on strengthening management skills of participating SMAE managers.
- Likewise, the program should broaden the number of NFS providers that it strengthens.
- The monitoring and evaluation system should be improved and much more time should be dedicated to its implementation.

The RAeD participation in this exercise has been important in generating questions that our own research needs to incorporate as we start to look at alternative RBDS models (see section 4.2.1 above).

4.2.3 GIS-based decision support tool that integrates market opportunities, land use potential, and income-resource conservation trade-offs for defining most appropriate locations for rural agro-enterprises

Contributor: Mark Lundy, Marco Antonio Vásquez

Collaborators: Orlando Mejia (PE-3)

Smallholders in Latin America have limited negotiating power in regards to other market actors due to information asymmetries regarding prices, quantities and quality and markets in general. As a result their goods are sold for prices that represent little or no profit. This situation is especially acute given the net decline of many commodity prices, in real terms, over the last five years and the constant increase of input costs. If these farmers had appropriate information they could take advantage of market price windows, diversify into new, higher value crops, produce both appropriate quality and quantities, sell to specific market niches with better prices and identify opportunities for simple (grading and sorting) or more complex (processing) options of value adding.

Work on a tool to provide information of this type to smallholders and their support agencies has advanced to the point of a beta version of the software for Honduras. The tool is called IntelAgro (see Figure 4.3.). The resulting product mixes GIS tools for agroecological zoning and a market intelligence system to create a hybrid that will provide more appropriate information for farmers and support agencies. Information generated by the tool has been provided to partner organizations in Honduras since February 2003 and the test version of the software will be distributed in early 2004.

Figure 4.3.



The software is very much at prototype stage, and further development is required in the algorithms for predicting crop distribution (likely to be linked with GEMS), the quantity and quality of market data, and in the user interface. The following are being developed:

- Dynamic probabilistic predictions of crop performance for the region, which can be improved given user input of site-specific traits (e.g., local soil conditions).
- Information on accessibility to markets given crops' perishability.
- Automatic updating of market data given Internet access, or manual means of importing updates divulged on disk/CD-ROM.
- Creation of user profiles so that users can save their specific details.
- Multi-variable prioritizing of potential crops for each site based on crop performance, market access, economic potential, and others.
- System for users to plan their planting dates, examine possible prices at harvest and compare diverse markets.

All functionality will be hierarchical in ease of use for non-experienced users, while more eager users are presented with options of greater detail and complexity.

Output 5

Enhanced capacity to design and develop successful agro-enterprise projects, within CIAT and other institutions

The purpose of Output 5 is to enhance the capacity to design and develop successful agro-enterprise projects, both among our partner institutions and within CIAT itself. Activities are contemplated at three levels. Activity 5.1 corresponds to the training of technical personnel in client institutions and organizations that are active in planning, in research, or in the promotion of rural agro-enterprise development. This training is provided through formal courses offered by CIAT and its partners. Activity 5.2 is aimed at enhancing the awareness of the contribution that rural agro-enterprise development can make to sustainable rural development. Documenting the impact of the investment in research and development in this area, and providing efficient means for disseminating the results of the work among different stakeholder groups, and particularly among key government and private sector decision makers achieve this. Finally, Activity 5.3 contemplates the consolidation and creation of strategic alliances that provide the basis for developing, in an integrated fashion, the project products and projecting them over a wider area. Activity 5.4 deals with internal development and external promotion of the project

Highlights

- The 'Learning Alliance' model between RAeD and development institutions with a view to enhancing the rate of uptake of innovative concepts, methods and technologies that are aimed at improving the competitiveness of smallholder production continues to attract interest among our development partners. New alliances have been established in Central America and the Andean Region.
- The 2nd CIAT - Southeast Asian Graduate Studies and Research Center for Agriculture (SEARCA) - Users' Perspectives with Agricultural Research and Development, Manila, Philippines (UPWARD) – Postharvest Technology Institute (PHTI), Vietnam course on "Sustainable Agro-enterprise Development in a Micro-regional Context" was held in Ho Chi Minh City, Vietnam May and June. Twenty-four participants from five countries in SE Asia participated in the 3-week course. A third course is scheduled for 2005.
- The decentralization strategy of the project has been strengthened with the start up of the Small-scale Agroenterprise Development in the Uplands of Lao PDR and Vietnam. The project now has personnel and activities in Latin America, Africa and Asia.
- The Andean Region has been successful in selling services to donor and development partners, generating over US\$ 30,000 for investment in the continued development of strategic research products, such as ATIS, RentAgro and the business development support tools.

Activity 5.1 Train national personnel in the design and execution of rural enterprise development projects

5.1.1 Learning Alliances for out scaling and action research implemented

Traditionally, the links between agricultural research and development institutions associated with the small farm sector have been weak, with a poor record of adoption of

innovations in terms of either technologies or methods, coupled with non-existent means by which the results of successes or failures can be fed back to the research process.

While this deficiency is now recognized and great efforts are being made to redress this situation through proactive collaboration between public and private service providers, in particular the publicly funded research institutions and the NGO sector, there is a need to make a radical change in the way in which knowledge and mutual learning experiences are created and shared between the two groups.

The project is attempting to put into practice a new model of mutual learning between research and development institutions, with a view to enhancing the rate of uptake of innovative concepts, methods and technologies that are aimed at improving the competitiveness of smallholder production. The model is based on a) the identification of a specific development need or demand, and b) the definition, and subsequent implementation, of a set of activities over time that involve a process of learning, putting into practice what has been learnt, reflection and feedback on what has worked and what has not worked, followed by a further cycle of learning, practice, reflection and feedback, etc. This approach differs substantially from the common practice of attempting to 'train' development practitioners in new methods and tools in one-off training courses of short duration.

During 2002 and 2003 concrete activities in this area were developed with CARE Nicaragua, CRS East Africa and with the partners of the Participatory Research Project (IPRA). New projects have been developed for working in four countries in Central America and with CRS in the Andean Region.

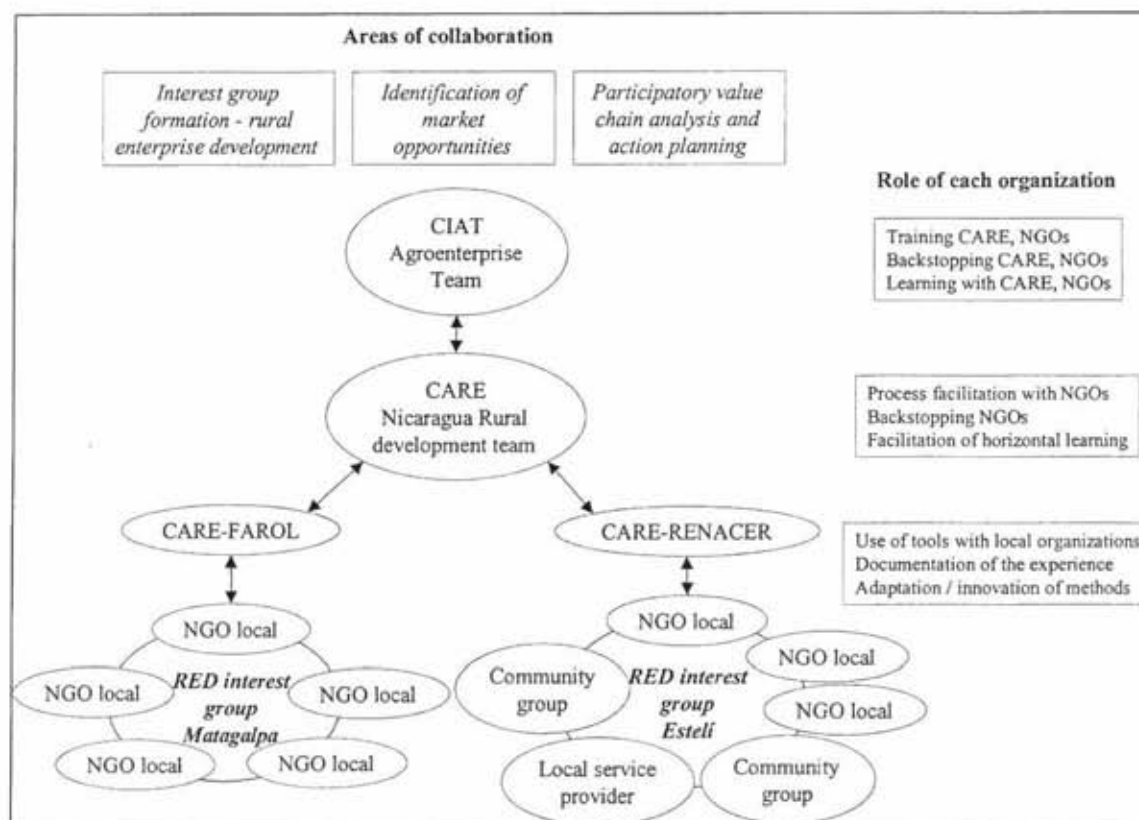
1. Learning Alliance with CARE in Nicaragua

Contributors: Mark Lundy

Collaborators: Félix Jiménez (CARE Nicaragua), María Elena Mendoza (CARE Nicaragua), Carlos Ullis Olivas (CARE Nicaragua)

In the case of CARE Nicaragua, an agreement was signed in July 2002 under which CIAT and CARE enter into learning alliance in the area of rural enterprise development via two existing rural development initiatives (RENACER in the Department of Estelí and FAROL in the Department of Matagalpa). While differences exist between the two areas, work is focused in both on: (a) the formation of local interest groups in rural enterprise development; (b) the identification of market opportunities, and; (c) participatory analysis and action planning for value chains. The following figure provides a schematic view of the relationships and roles in this learning alliance prior to initiating the collaboration.

Figure 5.1.
Learning alliance with CARE Nicaragua: Themes and responsibilities



As mentioned above, the possibility of working with a wide range of partner organizations – in this case ranging from an international NGO to local NGOs, service providers and community organizations – provides an ideal opportunity for CIAT to learn about what works, what doesn't and why and future research demands in diverse contexts without having to initiate activities from scratch. In addition the fact that all the above structures existed prior to CIAT's involvement – and are projected to continue to work after CIAT finishes – improves the possibility that the inputs provided will continue to be used, adapted and improved into the future. Finally, CARE Nicaragua covered all direct costs of this work thus freeing scarce project resources for research activities.

Results achieved during fourteen months of collaboration are summed up in Table 5.1.

Table 5.1
Results from a Learning Alliance between CARE Nicaragua and CIAT

Topic	Results	Observations
Formation of working groups for Rural Agroenterprise Development	<ul style="list-style-type: none"> - Formation of two working groups on rural agroenterprise development in Matagalpa and Esteli. - Improved understanding of differentiated livelihood strategies among selected communities. - Enterprise development potential identified. 	<ul style="list-style-type: none"> - Process too complex to carry out in one month as initially planned. - Need to include more explicit processes for the formation of the working group as such. - Requires strong facilitation skills that may or may not be present in development actors.
Identification of market opportunities with smallholders	<ul style="list-style-type: none"> - Elaboration of two market opportunity studies – one for Matagalpa and one for Esteli. - Identification of eleven potential crops with good market possibilities and acceptance among farmers. - Initial links with traditional and potential buyers for agricultural products. 	<ul style="list-style-type: none"> - Process driven by extensionists left out key markets for producer products. - Extensionists and managers frustrated by 'conservative' list of potential crops when other interesting opportunities exist. - Farmers and extensionists learned how to conduct market studies. Method adapted and adopted by both local NGOs and farmers post-study.
Analysis of production chains and the design of strategies for increased competitiveness	<ul style="list-style-type: none"> - Analysis and formulation of strategies for ten selected production chains. - Concrete links established with potential buyers – major supermarket chain – in the region. - Strategies developed for chain improvement. 	<ul style="list-style-type: none"> - Good information generated for new project proposals and for the establishment and/or strengthening of business development services. - Greater understanding of how a chain works, who participates and what each actor's role is. - Field guide too complex for extensionists. CARE in the process of adapting approach in a simplified form.

Lessons learned from the work with CARE Nicaragua include the following:

Importance of clear rules and benefits for all participants

Despite having a signed MOU and good personal relations between CARE Nicaragua and CIAT, significant changes were made to the rules of the game as work advanced. Additional time is needed to assure that all the participants in the Learning Alliance

understand their roles and responsibilities clearly and have the capacity and interest to carry them out. The explicit definition of interests, results and expected benefits by each participant can help here.

Trust, collaboration and organizational relationships

Increasing trust between CARE Nicaragua and CIAT serves not only to implement a Learning Alliance but also to present joint proposals to donors. In addition to six other joint proposals prepared with CIAT, the Rural Agroenterprise Project participated with CARE Nicaragua in the preparation two proposals: (a) one to replicate the experience with other development agencies in Esteli, and; (b) one for a USAID call for proposals for work on Business Development Services. This indicates that a Learning Alliance serves to open other channels of communication for mutual benefit.

Managing up and including donors

Two key lessons regarding donor relations were learned. First, the need to involve donors in the establishment of the Learning Alliance – definition of goals, time frames and outputs – and thus avoid changes in the rules of the game in the middle of the learning process. Second, the need to conform to donor imposed timeframes. An effective process of managing up both with CARE Nicaragua and CIAT as well as with key project donors could serve to avoid these challenges in the future.

Roles and responsibilities

Sufficient clarity as to roles and responsibilities was not achieved with CARE Nicaragua. As a result CIAT played a more proactive role than originally envisioned especially in areas such as process documentation and document preparation. This was partially due to communications problems but also has roots in time pressure and organizational culture. It was more comfortable and quicker to fall back on a consultant model rather than implementing the roles initially planned both for CARE and for CIAT thus limiting the organizational learning by CARE staff in how to carry out analysis and documentation of participatory processes.

Time

A desire to cover various complex topics effectively in a short amount of time led a less than optimal learning process. This was especially clear in the first component of the Learning Alliance, which was never effectively concluded. During the second and third components, additional time – one or two months – was added to compensate for this problem. Possible solutions include a less ambitious work schedule, simplified methods from CIAT – applying the rule of ‘optimal ignorance’ – and a clear discussion of the time implications of this work from the beginning with all participants not just project coordinators.

Diverse learning needs and models

The Learning Alliance with CARE Nicaragua did not clearly specify differentiated learning mechanisms for participant groups. In work that involves a range of talents, backgrounds and interests – from local community organizers, development practitioners, and development management professionals to international scientists – a diversity of learning needs is to be expected. This should be confronted at the beginning of the collaboration and effective, differentiated learning tools designed with each group.

Further diffusion of lessons learned

How can we best disseminate lessons learned beyond the circle of direct participants in the process? This is relevant not only for community leaders who answer to their neighbors but also to extensionists and managers in development organizations who need to justify their work plan and for scientists who wish to share new knowledge with

colleagues. Simplified tools for process and outcome documentation and sharing at diverse levels are lacking and should be developed for future Learning Alliances.

Appropriate materials

In a similar vein, the diversity of participants merits the design and use of diverse, appropriate training materials. A 'one size fits all approach' is not effective here. CIAT, as a CG Center that values research and theory, tends to produce training materials too complex for use at the community or even extensionist level. Simple and adaptable materials are needed – as explained in the two previous points – to this end. Joint design of training materials between CIAT and development partners may be a good way to advance in this direction.

Selection and continuity of participants

Just as not every farmer or extensionist wishes to be an entrepreneur, not all are suited nor wish to participate in a Learning Alliance process. Care in selecting appropriate people with sufficient interest and time to participate in the entire process is key. In the case of CARE Nicaragua, participants showed a high level of capacity and commitment yet some organizations changed their participants during the process, truncating learning and forcing other participants to wait while the new arrivals got up to speed. Dealing with this issue – both in managerial and personal terms – at the beginning of a Learning Alliance facilitates a more effective learning and development process.

2. Learning Alliance with CRS in East and Southern Africa

Contributor: Rupert Best

Collaborator: Shaun Ferris (Foodnet), Tom Remington (CRS-EARO)

The Learning Alliance established with CRS-East African Regional Office (CRS-EARO) and Foodnet that was reported last year has continued during 2003. Two additional workshops have been held and a summary of the three workshops held to date is presented in Table 5.2.

Between the 2nd and 3rd workshops a process of technical backstopping and progress monitoring by facilitators (RAeD and CRS regional staff) in the countries has been established. In the second semester of 2003, visits were made to Uganda (Gulu), Tanzania (Mwanza), Kenya (Mbeere) and Madagascar (Ansirabe). The present status of the projects in each country is shown in Table 5.3.

Based on the monitoring visits and the appreciations of the participants in the 3rd workshop, the major lessons learned to date and issues that are arising from this experience are:

- In a multi-country alliance such as this, it cannot be expected that all countries will progress at the same rate
- Turn over has been high. 45% of participants at the 3rd workshop had not attended previous workshops. The need to maintain key persons and strengthen country partners, whose level of personnel turn over is expected to be lower, is recognized as being important.
- Country programs have appreciated the need for in-house expertise in agroenterprise development. A number of programs have hired market or enterprise officers.
- Ownership by the CRS country participants and their partners has increased as the process has progressed and tangible results are being observed. In some countries, CRS is now recognized as having a capability in market and agroenterprise

development and other government and non-government organizations are seeking their support.

- Participants have appreciated the importance of and are seeking improved communication and exchange of experiences, with more frequent backstopping and monitoring visits.
- There is an uneven level of participatory, communication and facilitation skills among participants. This should be an area to receive attention in the future.
- The participants in the workshops have been predominantly male, with only one woman out of the 35 persons that have attended and participated in the alliance.
- Fieldwork to practice skills is one of the most valued aspects of the workshops by participants.
- Process documentation is an area that requires attention. At present, there is no motivation for countries to document their experiences and this is a task that is being taken up by the regional facilitators. Simpler procedures for process monitoring are required so as to make it easier to share experiences among countries.

Table 5.2.

Details of the three workshops held in the CRS – CIAT-Foodnet Learning Alliance on Agroenterprise Development

Workshop venue and dates	Areas covered	No. of participants	Countries
1. Nairobi, Kenya. 15-19 Sept. 2002	Territorial approach, Interest group formation and characterization of the territory, Rapid market study	17	Ethiopia, S. Sudan, Kenya, Tanzania, Uganda, Madagascar
2. Limuru, Kenya. 10-14 March 2003	Catch-up session for new countries. Review and analysis of progress, Rapid market study, Characterization of market opportunities and selection of enterprise options	20	Ethiopia, S. Sudan, Kenya, Tanzania, Uganda, Madagascar, Rwanda, Burundi, Malawi
3. Thika, Kenya. 10-14 Nov. 2003	Review and analysis of progress, Recap on rapid market survey, characterization of options and selection of enterprise options, Integrated agroenterprise projects design, Farmer organization.	20	Ethiopia, S. Sudan, Kenya, Tanzania, Uganda, Madagascar, Rwanda, Burundi, Malawi

Table 5.3.
State of progress of the countries participating in the CRS-CIAT-Foodnet Learning Alliance on Agroenterprise Development

Country	Institutional approval and internal planning	Working group formation and characterisation of territories	Market opportunity identification	Integrated agroenterprise project design	Integrated agroenterprise project execution	Strengthening local business development services	Observations
S. Sudan	x	x	x				Macro project whose 'territory' is the whole of the southern part of the country. MOI and market chain analysis will be terminated in March 2004
Ethiopia	x	x	x				Drought and food shortage have held up progress
Uganda	x	x	(x)				Civil strife impeded start-up. Market officer hired. MOI underway
Kenya							
Homabay	x	x	x				MOI completed, but process halted due to admin. difficulties
Mbeye	x	x	x	(x)	(x)		MOI completed, IAP design phase initiated. On-going chickpea, pigeon pea and green gram commodity chain projects underway
Tana River	x	x	x				MOI completed
Kitui	(x)						Attended 3 rd Learning Alliance workshop
Tanzania							
Lake Zone	x	x	(x)	(x)	(x)		MOI underway. On-going chickpea and pigeon pea commodity chain projects underway
Northern Zone	x	(x)					Working group formed.
Madagascar	x	x	x	x	x		Has implemented the IAP design methodology and developed IAPs for wheat, foie gras, peas, cucumbers, chickens, green beans
Rwanda	x						Start-up due January 2004
Burundi	x						Start-up due January 2004
Malawi	x						Country Program approval. Progress limited by lack of resources

3. Multi-organizational Learning Alliances established with NGOs in Guatemala, Honduras, El Salvador and Nicaragua.

Contributors: Mark Lundy, Marco Antonio Vásquez

Collaborators: José Angel Cruz (CRS Technical Advisor for Latin America / CRS El Salvador), Santos Palma (CRS Nicaragua), Darinel Lainez (CRS Honduras), Roberto de Paz (CRS Guatemala), Félix Jiménez (CARE Nicaragua), Arnaldo Bueso (CARE Honduras), Francisco Javier Medina (UNA Honduras), Ulrich Fechter (GTZ PRORENA Honduras) and Iván Rodríguez (Agropyme / Swiss Contact Honduras)

Based on the experience gained with CARE in Nicaragua (see above), a more ambitious Learning Alliance project has been prepared for working with multiple partners in four Central American countries. The project aims to answer key research questions on the Learning Alliance concept and process in order to improve performance of this means of generating and communicating knowledge between research and development organizations. The project was presented and approved for funding by IDRC. This section of the annual report describes the background, scope, objectives and methodology that will be pursued in this project over the next three years.

Definition

The multi-organizational learning alliance focuses on work by CIAT's Rural Agroenterprise Development Project to forge a stronger link between research findings and development outcomes through the promotion of cumulative learning processes, known as Learning Alliances, with international development NGOs and donor agencies. A Learning Alliance can be understood as *a process undertaken jointly by research and development agencies through which good practices, both from research and development, are shared¹, adapted, used and innovated upon to strengthen local capacities, improve practices, generate and document development outcomes and identify future research needs and potential areas for collaboration.*

Why Learning Alliances?

Improved understanding of how to develop and maintain multi-organizational learning mechanisms between research organizations, development agencies and donors has several potential uses for the developing world. These uses can be organized from general to specific. First, it facilitates the development of cumulative, shared knowledge between research, development agencies and donors about what works, what doesn't and why in temporal and spatial contexts. Shared and accessible knowledge in this sense can contribute to improved development outcomes as lessons are quickly identified and learned. Second, improved links among research and development actors should both improve research focus and development practice. As funds diminish, increased efficiency becomes paramount in achieving positive livelihood change. Learning Alliances is one way to make this happen. Finally, a flexible mechanism such as Learning Alliances can be adapted to other fields far beyond agricultural research but of equal importance for improved livelihoods. Possible examples here include health care and education programs.

¹ It is important to note that sources of existing good practice may be *internal* to the Learning Alliance (one or more of the partner organizations, for example, with experience in the topic) or *external* (literature review, practice of other research or development organizations or other third parties). The key issue is identification of relevant good practice and the development of tools that allow its application within the context of the Learning Alliance.

Of particular importance is the potential impact of Learning Alliances on vulnerable populations such as the rural poor. While rural people's organizations do not participate directly in this proposal, all partner organizations manage important projects that work directly with large populations of vulnerable rural people. Increased efficiency and effectiveness in their programming should result in improved development outcomes and, finally, in more options for dignified rural livelihoods. By providing a common framework for learning and action, the proposal seeks to add value to these activities in favor of the rural poor.

A final specific reason for Learning Alliances comes from CIAT itself. As pressure mounts from donors for more effective development outcomes from research findings, the international research centers are avidly searching for effective mechanisms. The Learning Alliance concept is one attempt to advance in this direction and, as such, could contribute to improvements not only in research focus (i.e. help CIAT identify its comparative advantages and niches vis à vis development partners) but also in the dissemination of good practices for collaborative learning to people and organizations with sufficient capacity to facilitate effective change. More effective links between CG Centres and major international NGOs could lead to significant learning and change processes that favor the rural poor.

Geographic and Organizational Coverage

The geographic focus of this work is Central American. Initial emphasis will be placed on Honduras with complementary work occurring in Nicaragua, Guatemala and El Salvador. Possible spill over effects are expected for Ecuador, Peru and Haiti. Beyond the Americas, lessons learned for this work will feed into Learning Alliances in Eastern and Southern Africa and new alliances in Vietnam and Laos.

In organizational terms, links will be forged or strengthened between CIAT's Rural Agroenterprise Development Project, international development NGOs, a university and donor agencies in Central America. Existing links to Catholic Relief Services (CRS), CARE, and GTZ active in rural enterprise promotion in Central America will be strengthened. Relationships with the Universidad Nacional Agrícola of Honduras will be established. Links to and communication with key donor agencies in the area of rural enterprise development in Honduras will be established in collaboration with the IDRC Honduras Initiative².

The above-mentioned partner organizations can be disaggregated into specific geographic and project contexts at the national level as shown in Table 5.4.

². Honduras has been selected as the focal country for interaction with donors due to the existence of various donor forums and mesas focused on rural development and agriculture. Spillover effects between donor offices and officials in Honduras are expected in other Central American countries

Table 5.4.
Organizational and Geographic Coverage of Partner Organizations by Country

Country	Organization	Geographic focus	Local partners	Total coverage
Honduras	GTZ, PRORENA	Western Honduras, Departments of Lempira and Intibucá	Municipalities, Local branches of government organizations, farmer organizations	10 municipalities
	CARE	North-Eastern Honduras, Departments of Santa Barbara, Copan, Yoro	Networks of rural smallholder agroenterprises, individual smallholder agroenterprises	3 enterprise networks, total 57 agroenterprises
	CRS	Western Honduras, Departments of Lempira and Intibucá	NGOs and Caritas	6 partner organizations, 6,084 beneficiary families.
	UNA	Central Honduras, Department of Olancho		
Nicaragua	CARE	Northern Nicaragua, Departments of Esteli and Matagalpa	NGOs and community organizations	7 NGOs, 20 community organizations, 3,000 beneficiary families
	CRS	Northern Nicaragua, Departments of Esteli, Matagalpa, Jinotega, Madriz and Chinadega	NGOs and Caritas	4 partner organizations, 5,000 beneficiary families
Guatemala	CRS	Central-North Guatemala, Departments of San Marcos, Ixcán, Alta Verapaz, Baja Verapaz and Chiquimula	NGOs and Caritas	5 partner organizations, 7,400 beneficiary families
El Salvador	CRS	South-Eastern El Salvador, Departments of Morazán, La Unión and others	NGOs and Caritas	14 partner organizations, 6,580 beneficiary families

Traditionally CIAT has worked directly with local organizations at a small-scale (i.e. municipality). Why does this project propose linking to international NGOs rather than working at the local scale? General advantages of working with international NGOs include their coverage, skilled staff base, ability to access significant complementary development funding, experience and potential for rapid expansion of lessons learned³. In the specific case of this project, the partner organizations possess two important additional attributes. First, all share a strong focus on building local organizations' capacity and, eventually, shifting towards development facilitation rather than direct implementation. The desire for this philosophical shift is clear in all partner organizations; however, the practical achievement of it in the field varies tremendously. Second, working with strong, experienced partner organizations facilitates effective processes of negotiation between research and development agendas. When working with local organizations, CIAT controls the relationship and agenda due to power imbalances; negotiating with strong partners is one way to learn how to make research more demand sensitive.

There are, however, certain disadvantages inherent to working with international development NGOs. Principal among these are their dependence on donors for project funding, a need to conform to project log frames and relative inflexibility in trying innovative approaches. The resulting pressure to produce short-term, concrete, quantifiable results presents a conundrum for Learning Alliances as it favors recycling existing practice that may be of limited effectiveness as opposed to innovating. This issue needs to be explored further with the partner organizations to identify appropriate ways to mitigate pressure for short-term results in the context of this project.

Boundary Partners

The project works with three types of boundary partners: development agencies, scientists, and donors. **Partner development agencies** include those listed in Table 5.4, with possible changes over the project's lifespan. **Scientists** include other researchers, projects and institutes at CIAT with whom the Rural Agroenterprise Development Project interacts. **Donors** include the international agencies represented at diverse donors rural development forums and mesas in Honduras.

Principals for Learning Alliances

For successful Learning Alliances, several principals should be kept in mind.

Clear objectives

Clear objectives based on the needs, capacities and interests of the participating organizations and individuals must be defined. What does each organization bring to the alliance? What complementarities or gaps exist? What does each organization hope to achieve through this collaboration? Answers to these questions expressed in an overarching cooperative agreement is a helpful first step, however, a clear understanding of organizational cultures and how to collaborate effectively is often only achieved through practice.

³ Expansion of lessons learned with these partners can be either **out scaling** or **up scaling**. In out scaling, the geographical coverage of the knowledge expands to new areas. Up scaling, on the other hand, is an organisational process by which lessons learned influence the way an organisation works at a higher level. International NGOs with their international scope provide a unique opportunity to achieve both out scaling and up scaling and thus large-scale impact. Working with local organizations does not provide this scope.

Shared responsibilities and costs

A Learning Alliance seeks to benefit all parties; therefore responsibilities and costs should be shared. This is imperative at the beginning of such relationships where funds for out scaling (from the research side) or training (from the development side) are often tied to inflexible project budgets. In the future, joint proposals for funding may present a good vehicle for supporting these activities.

Outputs as inputs

Rural communities are diverse and, as such, there are no set development answers. Learning Alliances view research and development outputs as inputs to processes of rural innovation that are place and time specific. Methods and tools will change as users adapt them to their needs and realities. Understanding why adaptations occur, if they are positive or negative in terms of livelihood outcomes and documenting and sharing lessons learned is the goal.

Differentiated learning mechanisms

Learning Alliances have diverse participants ranging from rural women to extensionists to NGO managers to international scientists. Identification of each group's questions and its willingness to participate in diverse aspects of learning processes is key. Flexible but connected methods – ranging from participatory monitoring and evaluation to tried and true impact assessment – are needed.

Long-term relationships

Rural development processes stretch over many years or decades. To effect meaningful change and to understand why that change occurred requires long-term, stable relationships capable of evolving to meet new challenges. Trust, generated through effective results, between researchers, development practitioners and donors is the glue for these relationships. The transaction costs involved in establishing and maintaining Learning Alliances and their long-term nature indicate that quality should take precedent over quantity.

From this framework, the following research questions can be identified.

- Research Questions
- How can Learning Alliances assist in identifying and sharing “good-practices” for rural enterprise development, facilitate processes of adaptation by diverse partner organisations and highlight gaps for further research?
- How can Learning Alliance assist in the definition of comparative advantages or appropriate roles for CG Centres on the research to development continuum?
- Is a “Learning Alliance” good practice for promoting and supporting Institutional Learning and Change in the area of Rural Enterprise Development?
- What are the key constraints to more effective cumulative learning within research and development agencies, between research and development actors and across these actors in a specific geographical context? How can these be overcome?
- What is the potential of partners in a Learning Alliance to explicitly learn about gender, environmental and social aspects of rural enterprise development?
- How can process documentation, analysis and sharing of lessons learned be facilitated among participating organisations across diverse geographic areas?
- What constitutes “good practice” in the communication of Learning Alliance results that engages and influences boundary partners in an effective fashion?

The project hopes to exert influence over three specific groups of boundary partners: researchers, development practitioners and donors. For each group, specific outcomes are envisioned as shown in Table 5.5.

Table 5.5.
Expected project outcomes by boundary partner

Boundary Partner	Outcomes
Researchers	- Research agendas focus clearly on critical development issues, develop findings as inputs for development processes, possess skills to facilitate collaborative learning processes and work more closely with development agencies.
Development practitioners	- Strengthened capacity for systematic documentation, analysis, learning and sharing of lessons learned both individually and as a group, more ability to influence research agendas and stronger relationships with researchers and key donors.
Donors	- Understand how multi-organisational learning processes can be designed and facilitated, the usefulness of this approach, possess greater understanding of effective rural development tools and engage directly with both research and development agencies in designing effective collaborative mechanisms.

Several potential challenges confront the execution of this proposal and the use of its results. Project execution may be hampered by: (a) lack of complementary development funding for rural enterprise development projects for partner organizations; (b) competing agendas between learning alliances and existing donor-funded development projects; (c) an inability of CIAT to respond in a timely and effective fashion to partner needs; and, (d) limited interest of donors in a learning approach such as this.

The use of project results faces the major challenge of changing existing practice of researchers, development practitioners and donors. Any of the boundary partners may decide that this approach is too time or relationship intensive and opt for continuing with existing practice.

4. Learning Alliance with CIAT's IPRA Project in the Andean Region

Contributor: Carlos F. Ostertag

Collaborators: Jose I. Roa (IPRA)

Funded by Kellogg, the RAeD Project and IPRA are executing a business training process under the Learning Alliance format, targeted mostly for technical staff of support organizations working with CIALs and a few leaders of second-level small farmer participatory research organizations. Participants are from four Andean countries, Colombia, Ecuador, Peru and Bolivia. Two workshops were conducted last year, the first one focused principally on basic business concepts and the MOI methodology, and the second one on IAP design. As homework after each workshop, participants executed MOI studies and designed IAPs, together with CIALs in their respective work sites.

During 2003, the RAeD Project contacted the participants in their respective countries to review their work on IAP design and visited the CIAL project sites. The products of IAPs designed included maize or corn, poultry, potato chips, and native potatoes.

It can be concluded that CIALs can indeed evolve into rural enterprises but require much more support in the form of training, coaching and funds. Local service providers should offer this support. The need for developing business plans and obtaining access to credit was clearly identified during the visits. Together with IPRA, the RAeD Project decided that a major priority was to plan and execute a workshop on business plan preparation.

5. Learning Alliance on Rural Business Development with the development NGO, Fundación El Alcaraván (FEA), Colombia

Contributor: Carlos F. Ostertag, Diego A. Izquierdo

Collaborators: Francisco Ceballos (FEA)

There is a current trend that consists of strengthening the business and market orientation of rural development efforts. These development efforts are also searching for methods to promote empowerment and commitment of small rural producers. Beginning 2003, the NGO FEA, funded by the oil industry and operating in the eastern plains of Colombia, contacted the RAeD Project in search of support for strengthening their institutional capacity in these two vital topics.

The objectives of this Learning Alliance is to strengthen the institutional capacity of FEA in rural business development and in the process, to learn more about (a) the operation of development NGOs, and (b) research demands and challenges when working with small farmers in market-oriented schemes.

The methodology involves two one-week workshops with technical personnel from the FEA, one on the RAeD Projects TA-RBD and the second one on Basic Business Concepts and Planning Instruments. A work plan was jointly developed in the second workshop, focused on the implementation of the four modules of the TA-RBD by FEA personnel with the accompaniment of the RAeD Project. Analysis and documentation of the process was also considered in this methodology.

To date, both workshops have been conducted, and FEA personnel is in the process of preparing the regional biophysical and socioeconomic profile. It should be noted that this Colombian NGO has confronted serious problems related to violence and insecurity. Among lessons learned are the following: (a) internally, FEA has not reached a consensus relative to the need for a business orientation and this is reflected in deficiencies in the organizational structure and functions; (b) the need for business and chain-analysis training and coaching by FEA personnel has been amply confirmed; (c) small farmers in FEA's area of influence are not empowered and are accustomed to receiving aid in form of donations and gifts, and (d) the actions of violent, armed actors in the region hinders the progress in rural business development.

6. Learning Alliance with Proyecto Emprender (InterCooperation) in Ecuador

Contributor: Carlos F. Ostertag

Collaborators: Juan Bravo (Proyecto Emprender), Patricia Camacho (IC); Verónica Gottret

Activities this year included three workshops in Ecuador with the participation of personnel from the SDC-funded and IC-operated Proyecto Emprender and partner NGOs (mainly Fundación Marco, SEDAL, and FEPP). Proyecto Emprender focuses on promoting rural business development in the provinces of Chimborazo, Tungurahua and Cotopaxi in Central Ecuador.

The first four-day workshop was held in March and centered in presenting a summary of the TA-RBD and to train participants in the MOI methodology (second module of the TA-RBD). Participants were most interested in the characterization matrices of the MOI manual. Since they have already chosen production chains to work on, they are less interested in the process of identifying new market opportunities. The second three-day workshop was conducted in August and focused on training participants on the preparation of business plans. It should be noted that the topic of this second workshop was modified; originally it was to be on the design of IAPs. Participants, belonging to seven NGOs, associations and academic institutions, were trained on business plan development and developed three business plans, one for each province encompassed by the Proyecto Emprender. These business plans concentrated on the products blackberry, poultry and hay packs for cattle forage.

The third workshop, held in November, centered in the area of RBDS (module 3 of the TA-RBD), and how to develop actions plans for strengthening them.

7. Joint Learning Alliance in collaboration with CIP/CONDESAN to strengthen the MARENASS Project in Peru

Contributor: Carlos F. Ostertag

Collaborators: Sonia Salas (CIP/CONDESAN)

The objective of this alliance is to strengthen the business and market orientation of the MARENASS Project, a large government-executed and IFAD-funded project operating in the hillsides of southern Peru. Although this project has a natural resource conservation focus, MARENASS is very interested in reinforcing its income-generating (or rural business development) component.

One of the main activities in this CIP-CIAT collaboration is to validate methodologies for identification of marketing opportunities for small rural producers (CIAT) and related to participatory marketing of traditional products (CIP), through a Learning Alliance scheme contemplating training, execution, feedback and learning. The idea is also to look for ways to integrate both procedures.

However, it is quite clear now that Marenass requires support on other business topics such as business and market orientation, marketing basics, production chain analysis, cost accounting, profitability models, and preparation of business plans. In fact, participants in this second workshop already expressed their interest in receiving training on development of business plans.

On September 10-11, a two-day workshop was conducted in Cusco with 20 technical personnel who are regional supervisors of technical personnel operating in 360 communities throughout the Andes of southern Peru in the departments of Cusco, Ayacucho and Apurímac. Altitude ranges from 2,000 to 4,200 masl. The workshop focused on the themes of "identification of marketing opportunities for small rural producers" (module 2 of our "Territorial approach to rural business development") and on "participatory marketing". The event included presentations and group exercises and practices. In the final evaluation, participants recognized the need for this type of business training.

Previously, CIP (Sonia Salas) had conducted a workshop in Cusco on Outcome Mapping and had visited Cotahuasi to conduct a "rapid participatory diagnosis" and an analysis of the marketing chain of woolen hats, a traditional artisan product in the zone, to identify key bottlenecks along the chain. Two chain links were defined as critical, the processing and marketing ones, and in-depth studies will be undertaken. Afterwards, an action plan will be developed to strengthen this traditional chain.

Based on the analysis of the MARENASS Project's needs and demands, the following steps are being proposed:

- (a) As an assignment, workshop participants will execute the two methodologies in their work sites. The first methodology (CIAT) can be used to identify production alternatives for diversification, and also to identify market potential for traditional products. The second methodology (CIP) is useful to identify market opportunities for traditional products (for example, woolen hats). One group of participants will work on the first case, and the other on the second one.
- (b) The next workshop (number three), will have three sections spread during four days: in the first one, participants will present the results of their assignment, with a subsequent discussion; second, new material will be presented in two days, this time focused on basic business concepts, such as business and market orientation, basics of rural agro-industry, marketing basics, new product development, cost accounting and profitability models; and third, another task will be assigned to prepare participants for the next (fourth) workshop
- (c) The fourth workshop will focus on chain analysis and development of business plans.

In order to maximize quality time during the workshops, reading material in the form of summary presentations will be handed to participants with an anticipation of at least two weeks, and its lecture will be a must for all participants.

8. Planning of Learning Alliance process with Catholic Relief Services (CRS) - Andean Region plus Haiti

Contributor: Carlos F. Ostertag

Collaborators: Eduardo Contreras and Martha Huamán (CRS Peru), Lorena Mancado (IC Ecuador), and workshop participants

In April 2003, Catholic Relief Services (CRS), an international NGO, and CIAT signed a global agreement with the objective of strengthening institutional capacity in business and marketing topics to improve the quality of services offered in the context of rural development. As a result, both institutions are executing and planning Learning Alliances in Africa, Central America, Asia and the Andean Region.

In the Andean Region, CRS and CIAT conducted a sub-regional workshop titled "Analysis of institutional capacity and planning of a learning alliance process in rural business development", held in Piura (northern Peru) from 15-19 September. Participants, around 20, included CRS staff from Peru, Ecuador, Bolivia and Haiti and from some partner NGOs such as Caritas and others. The Swiss NGO InterCooperation was also present.

The event included presentations by CIAT and CRS on their working strategies and plans; presentations and analysis of on country projects; presentations and visits to two successful agro-enterprises; a SWOT analysis for each country and the preparation of a

plan for the Learning Alliance process. The latter included four workshops during a one-year period, to be held in Lima and Quito. The workshop topics are the following:

- Workshop 1: "Basic business concepts" and "Territorial analysis"
- Workshop 2: "Market opportunity identification" and "Design of integrated agro-enterprise projects"
- Workshop 3: "Strengthening RBDS" and "Preparation of Business Plans"
- Workshop 4: "Monitoring and evaluation"

The four modules of our "Territorial approach to rural enterprise development" are included in the latter workshops. The group assigned top importance to the activity of systematizing and documenting the learning process. The view is that participants to be trained in the workshops will in turn train other staff members in their respective countries and will jointly implement the methodologies and procedures in their work sites.

Activity 5.2. Enhance the awareness of the potential of rural agro-enterprises to contribute to rural development

5.2.1. Rural innovation processes for rural agro-enterprise development and their contribution to sustainable rural livelihoods

For background on this activity see the RAeD Annual Report 2003. Progress will be reported in 2004 when the thesis research has been concluded.

Activity 5.3 Strategies for project decentralization developed and implemented

The strategy in each region are based on finding effective ways of complying with the project's three strategic processes, as follows: (a) identifying client demands for research and related products, (b) developing products in the form of methods, instruments and information, and (c) promoting the development of local capacity for rural business development. These strategic processes provide value to our clients, who are government and non-government rural development organizations, small farmer organizations and agro-enterprises, donors, government agencies, academic institutions, and development banks. There are two crosscutting requirements for the execution of our strategic processes: the development of alliances and funding. The latter are support processes that are not important for our clients, but are of a critical nature for us.

5.3.1 SE Asia

Contributors: Dai Peters, Chris Wheatley and John Connell (CIAT),

Identification of research demands

A member of the RAeD team participated in the ACAIR International Workshop on Supply Chain Management and the 21st ASEAN/3rd APEC Seminar on Post-Harvest Technology, held in Bali, 19-24 August 2003. A key need identified is for action research that seeks ways to lower transaction costs for involving smallholder producers in more managed supply chains, either through community level producer organizations, or through working with traders to provide an organizing function in addition to their normal marketing role.

In future, the process of identifying research demands will be intimately linked to the execution of the SADU project (see *New product development* below).

New product development

Mid 2003, the project "Small-scale agroenterprise development in the uplands of Lao PDR and Vietnam"(SADU) got under way. The purpose of this project is "to develop sustainable agroenterprise initiatives with upland rural communities that generate income and employment opportunities through diversifying and adding value to local natural resources". The objectives embody the process that will be followed in facilitating agroenterprise development, ensuring its sustainability, and setting the context for extension of the approaches developed:

- Identify and evaluate market opportunities for agroenterprise development through local stakeholder interest groups,
- Design and facilitate the implementation of agroenterprise initiatives with supply chain actors,
- Establish a strategy and local capacity for promoting agroenterprises and strengthening local business support services, and
- Institutionalize the agroenterprise development process at district, provincial and national levels.

The project will operate in a domain where services are not provided at present by government agencies. While this is new domain of development in Vietnam and Lao PDR, there are international and local examples, which illustrate that facilitation and support for agroenterprise development can be successful in increasing incomes of poor households. Training of facilitators for agroenterprise development at national, provincial and district levels by action-oriented activities will introduce a new competency into these organizations with the aim of promoting private enterprise initiatives in the rural sector.

Building local capacities

The 2nd regional course on "Sustainable Agro-Enterprise Development in a Micro-regional Context" was held in Ho Chi Minh City. 31 March – 18 April 2003. 24 participants attended the course with three each coming from China, Indonesia, Lao PDR, and 15 from Vietnam. Several participants in the course were from institutions that will be partnering CIAT in the SADU project.

The course covered the core steps of the CIAT agroenterprise development methodology; Micro-regional approach; Characterization of the micro-region; Market Opportunity Identification; Market Chain analysis; Role of Value Chain and Identification of Integrated Agroenterprise Projects.

These core modules were supported by additional modules on background issues, such as socio-economic characterization of the rural sector in Vietnam; sustainable livelihoods framework; entrepreneurship; role of research in new product development; and quality certification and export procedures for agri-food products.

Further modules were provided on various skills for agroenterprise developers, namely communication skills; organization and management; financing for agroenterprise. Two field trips served to ground the concepts, and allow the participants to exercise some of the tools.

All the participants came from very much the 'production orientated background', where the problem of markets was often bemoaned, but always felt to be either

something that couldn't be dealt with, or wasn't their responsibility. The workshop was extremely successful in changing that view. The participants now see production as just part of a 'market chain' and that to deal with marketing issues the chain needs to be examined as a whole. This was a very significant shift in thinking and attitudes.

The workshop was for international participants, and as such had to address the needs of participants from different backgrounds; cover the topic at different levels; and present the whole process from beginning to end. As such, despite the fieldwork, it did suffer from covering too much in too short a time and cannot be expected to have resulted in a group of participants confident in using these new skills immediately. A better approach is to have progressive inputs as practitioners work through activities in the field. This is what SADU will have to do within the context of each country, or province.

Project administration

Following an international selection process, Dai Peters took up the position of Regional Coordinator of the RAeD project and leader of SADU on 16 June 2003. She is based in Hanoi. John Connell was hired as the Community Development Specialist and initiated work on 16 July 2003, stationed in Vientiane. National coordinators have been hired for Lao PDR and Vietnam respectively. The whole team was assembled by October 2003, induction took place in November and fieldwork has commenced.

Memorandum and Letters of Understanding are in the process of being signed with the respective government ministries and departments in Lao PDR and Vietnam. An office has been established in Hanoi.

5.3.2 E/S Africa

Contributors: Rupert Best, Elly Kaganzi

Identification of research demands

During 2003, RAeD project participated in the priority setting exercise undertaken by Foodnet (an ASARECA network). The three main areas that stakeholders prioritized were: market and trade information systems, enterprise development and capacity building. In addition, demands for support have received from a) ASARECA commodity networks to support them in incorporating a greater market orientation, b) national agricultural research institutions, the National Agricultural Research Organization (NARO) of Uganda in accompanying them in a process of mainstreaming market oriented research.

New product development

The following initiatives are underway:

- (a) **Enabling Rural Innovation (ERI).** This interdisciplinary project seeks to promote rural communities, and the farmers that make up these communities, as agents of their own change. The approach includes decision-making on, and development of, options for income-generation. There is special emphasis on gender-related issues related to the selection of viable options for soil fertility maintenance, based on the identification of attractive market options. Research has been expanded from three sites in 2002 to 8 sites in 2003. The Canadian International Development Agency (CIDA) and the Belgian Government fund the project. See Output 1.1 for further details.

- (b) **Strengthening urban agriculture in Kampala.** Foodnet and the CIAT RAeD are leading a subcomponent of this project on the identification and evaluation of appropriate market options for urban and peri-urban farmers. This 1-year project, whose objective is to generate information that will lead to the development of a long-term project on urban agriculture in Kampala, is part of the Strategic Initiative on Urban and Peri-urban Agriculture. See Output 1.1 for a report on this work.
- (c) **Market opportunity identification study for NAADS.** With Foodnet, the RAeD project initiated in November 2003 a project to identify market opportunities for the farmer organizations that are covered by the Uganda's National Agricultural Advisory Service (NAADS) in their 'trailblazing' sub-counties. NAADS sees this project as a methodology validation and adaptation process that can be used as the basis for use by other service providers in the future.

Building local capacities

- (a) **The Learning Alliance between Catholic Relief Services and CIAT-Foodnet.** The purpose of this alliance is, through a mutual learning process, to improve the capacity of CRS East Africa personnel, and that of its partner institutions, to support the development of sustainable links between their target farmers and markets, while at the same time providing feedback to research on the usefulness of the methods and tools employed. Ethiopia, southern Sudan, Kenya, Uganda, Tanzania, Madagascar, Rwanda, Burundi and Malawi are the countries involved in this alliance. See Output 5.1 above for further details.
- (b) **Market facilitators' workshop.** Within the ERI initiative, a workshop for the market and community development facilitators to exchange and document experiences and learn about Integrated Agroenterprise Project design was held 24-28 March 2003 in Lushoto, Tanzania. 19 persons from the ERI pilot sites in Malawi, Tanzania and Uganda participated in the event. As a result of the meeting and with the objective of systematizing and documenting experiences in the pilot sites, a manual on community agroenterprise development is being prepared.
- (c) **The Southern African Root Crops Research Network (SARRNET-IITA-CIP) agreement with CIAT and CLAYUCA.** The project and CLAYUCA are providing market and enterprise orientation to SARRNET over the period 2000-2003 with the aim of promoting the agro-industrial use of cassava and sweet potato through the formation of public-private R&D partnerships. The final report for this collaboration was presented in November 2003.
- (d) **Participation in ERI related workshops.** Members of the RAeD team participated as co-facilitators in ERI related capacity building exercises dealing with the participatory market research and enterprise development components. These are reported in the Participatory Research Project's Annual Report 2003.

Support processes – fund-raising and alliances

The project participated in various initiatives led by other projects to secure additional funding. Of note are: A proposal to CIDA that provides the resources to continue and consolidate the ERI initiative described in Output 1.1, and a proposal to the Belgian Government that will contribute to the ERI initiative with particular attention the enhancing the assets of poor women farmers. Both of these projects were approved.

In development at the present time is a project proposal for the Rockefeller Foundation on 'Improved livelihoods for smallholder bean farmers in East and Southern Africa: Seeking competitiveness and added value through strengthened farmer-market linkages'. The value of the project is expected to be in the region of US\$ 1.5 million over 3 years.

5.3.3 Central America and the Caribbean

Contributors: Mark Lundy, Marco A Vasquéz (CIAT)

Identification of research demands

While a formal process to identify research demands was not carried out during 2002, informal consultations with farmers, farmer organizations and support agencies in both Nicaragua and Honduras provide a general idea of research demand. The following table presents a compilation of research demands.

Table 5.6.
Demand for agroenterprise research in Central America

<ul style="list-style-type: none"> ▪ Impact of Central American Free Trade Agreement on smallholders and possible strategies to counteract unfair competition from US agriculture. ▪ Improved agricultural market and product information systems. ▪ Participatory market identification, intelligence and development tools. ▪ Provision of support services and development of markets for rural Business Development Services, BDS. ▪ Design and facilitation of horizontal learning processes between NGOs active in rural economic development to identify best practices which feed into ongoing development initiatives and donor policy formulation.

Source: Trip reports 2003 and personal communication

A formal process of demand identification is included in the multi-organizational Learning Alliance work described previously. The proposed work would involve Learning Partners in a process of reflection on what they have done in terms of rural economic development, what has worked, what has not and why. From this exercise – based on two face-to-face workshops in the region – and electronic communications a joint research agenda for the area of rural enterprise development would be developed.

New product development

Product development in the region continues through two different strategies: (a) direct implementation in reference sites, and; (b) implementation through learning partnerships with development agencies.

In the first case, work in CIAT reference sites in Honduras and Nicaragua provides opportunities to test new ideas on a trial basis under direct CIAT supervision. This is the case with tools such as that described in Output 4.2.4 "GIS-based decision support tool that integrates market opportunities, land use potential, and income-resource conservation trade-offs for defining most appropriate locations for rural agro-enterprises", the IAP methodology and up-coming work on markets for rural business development services. Once these methods and tools have been developed and tested at

this level they are considered “prototypes” and may be offered to interested development partners to continue their refinement and dissemination.

In Central America as in Africa, the second strategy for new product development is being used under the name of Learning Alliances (see Activity 5.1.1 for additional information) with development organizations. In this case the action research processes being implemented are problem based and holistic in nature. As a result they link a variety of the Project’s tools in a logical manner. Additional work is projected in this area in Honduras with CARE (Market Access Proposal), GTZ (COHASA Project), IPCA / ASHOCIAL and possibly Catholic Relief Services and World Vision. It is important to note that this work contributes to two strategic processes of the Project simultaneously: new product development and building local capacities.

Building local capacities

Strengthening local capacities for rural enterprise development in Central America involves the use of the learning alliance model (see Activity 5.1.1 for additional information) and direct training courses in the region. Training workshops on production chains and smallholders were carried out in November 2002 and September 2003 in coordination with the Center for the Competitiveness of Eco-Enterprises (CeCoECO) of CATIE in Costa Rica. Eleven participants from Bolivia, Ecuador, Mexico and Venezuela participated in the inaugural workshop in 2002. Final evaluations for the course overall were high (90% average score) while CIAT’s participation received an overall score of 94% satisfaction. Continuing post-course activities are underway with two of these participants in Bolivia and Venezuela respectively.

In 2003 a rapid promotional process led to nearly double the number of participants—21 – with students from Bolivia (7), Peru (3), Nicaragua (3), El Salvador (2), Ecuador (2), Venezuela (1), Mexico (1), Dominican Republic (1) and Cuba (1). Final evaluations for the course were highly favorable (over 85% average score) while CIAT’s participation received an overall score of over 90% satisfaction.

For 2004 additional training courses on production chains are planned in Bolivia (led by CeCoECO), Colombia (led by CIAT) and Costa Rica (joint CIAT-CATIE course) and a virtual course is currently under development. An inaugural course on market analysis for Business Development Services is slated for Central America along with the production of training materials. Finally a joint course on Rural Agroenterprise Development and Smallholder Livelihoods is under discussion.

Project administration

Mark Lundy is responsible for Project administration in Central America. Marco Antonio Vásquez coordinates fieldwork in Honduras and Nicaragua. Additional collaboration occurs with the CIAT regional coordinator Miguel Ayarza and other CIAT projects such as forages (M. Peters, A. Schmidt, F. Holman), Inforcom (N. Russell), IPRA (B. Douthwaite), Land Use (T. Oberthur and S. Cook), Soils (E. Barrios), Tropical Fruit (J. Cock) and the Institute of Rural Innovation (J.A. Ashby).

5.3.4 Andean Region

Contributors: Carlos Ostertag, Diego Izquierdo (CIAT)

Identification of research demands

In the Andean Region, the project is establishing and consolidating alliances in Colombia, Ecuador, Peru, Bolivia and Venezuela. Some of our allies are at the Andean regional level, whereas others are at a national or local level (see Table..).

We can classify our research demands into three categories, which may overlap, as follows: research demands derived (a) from our "Territorial Approach to Rural Business Development or TA-RBD", (b) from our strategic processes, and (c) from our clients.

Some of the key questions and demands often made by our clients in the Andean Region include:

Small Farmer Organizations

- How can viable small farmer organizations be promoted?
- What are some effective methods for promoting a business orientation with farmer organizations?
- How can motivation and commitment be maximized within the farmer organization?
- How can the social and business perspectives be balanced within the farmer organization?
- Which is the best legal/ownership format for small farmer agro-enterprises?
- Is the separation of ownership and management a good strategy for farmer organizations?

Market Chain Strengthening

- To maximize income, should small farmer organizations integrate vertically or should they make strategic alliances along the product chain?
- What are the best methods for linking small farmers with the private sector?
- What link in the product chain should be strengthened to favor small farmers the most?
- Under what conditions and products could small farmers really have a competitive advantage over other players?

Rural Business Development Services

- When is it necessary to subsidize rural business development services (RBDS) and why?
- When is it not necessary to subsidize rural business development services (RBDS) and why?
- Development of simplified formats for business planning tools (strategic planning, business and marketing plans, etc.)
- How can the availability and access to credit and venture capital for small farmer organizations be maximized?
- Development of appropriate production and processing technology for products with market potential.

National Policy

- What kind of policies is needed to enhance rural business development?
- What are some strategies to promote better government policy relative to small farmers?

We have to be on the lookout for answers and clues to these questions by consulting secondary information, including electronic bulletins, and participating in pertinent conferences and symposiums. However, we can also identify demands in our daily work while conducting action research such as Learning and Action Alliances, plus training and also in the process of developing products.

Developing research and information products with partners

Among the specific products being developed in the Andean Region, that include those being developed at CIAT HQ include:

- a) RentAgro (see Output 3.1)
- b) Market and business tools for small rural enterprises (see Output 3.1)
- c) Market opportunity identification methods (see Output 1.1)
- d) Validation of the components of the territorial approach (see Output 4.2)
- e) The alternative Trade Information System (see Output 1.2)

Promoting the development of local capacity for rural business development

Our goal is to reach a large amount of potential beneficiaries as quickly as possible, and the clue is to make alliances with institutions that can act as multipliers. These institutions can be international NGO's, large national NGO's, international development programs, government agencies, donors, and academic institutions including informal Internet-based trainers such as REDCAPA. These are our direct clients, whereas small farmer organizations and rural agro-enterprises are not; the reason why we work with them, mainly in reference sites, is to identify their needs and research demands, and to validate product prototypes.

We develop several type of relations with these intermediary agencies, such as: (a) Learning Alliances, a process involving training-action-accompaniment and learning and focused on the TA-RBD and basic business concepts and planning instruments, which we conduct mainly with international and large national NGOs such as CRS, IC, Fundación El Alcaraván, Proyecto MARENASS, Fundación PROINPA, etc.; (b) Action Alliances centered on strengthening the business orientation of small farmer economic organizations; (c) alliances for joint project execution on several themes, as is the case with CIP-CONDESAN, PRODAR, ITDG and REDCAPA, and (d) alliances for funding of relevant training and research, such as both FDTAs, MADR, CTB and PDPMM.

Table 5.7.
Strategic alliances of the RAeD Project in the Andean Region

Country	Alliance consolidated	New alliance
Andean Region	<ul style="list-style-type: none">▪ InterCooperation or IC (Swiss international development NGO)▪ IPRA (CIAT project focused on participatory research)▪ CIP-CONDESAN (CIP Project focused on natural resource conservation and rural development)▪ PRODAR (Latin American agro-industrial network)	<ul style="list-style-type: none">▪ CRS Andean Region (international rural development NGO)▪ ITDG (international development NGO)▪ REDCAPA (international NGO and network focusing on distance education)
Colombia	<ul style="list-style-type: none">▪ CORPOTUNIA (local NGO)▪ Agro-industrial Committee of CIPASLA (development consortium)▪ CIPAV (national development NGO)▪ Corporación Consorcio (national development NGO)	<ul style="list-style-type: none">▪ Ministry of Agriculture and Rural Development (MADR)▪ Agriculture Secretariat of the Valle Department▪ Fundación El Alcaraván (local development NGO)▪ InforCauca (information network)▪ Programa de Desarrollo y Paz del

		Magdalena Medio or PDPMM (local development NGO) ▪ ASOHOFRUCOL (national fruit and vegetable growers association)
Ecuador	▪ Proyecto Emprender (development project funded led by IC) ▪ IICA Ecuador	▪ CTB (Belgium technical cooperation) ▪ IIRR (international development NGO)
Peru	▪	▪ Proyecto MARENASS ▪ ITDG
Bolivia	▪ Fundación PROINPA (national development NGO)	▪ FDTA-Valles (Public-private development foundation) ▪ FDTA-Altiplano (Public-private development foundation) ▪ ATICA (international development NGO) ▪ CIOEC Bolivia (national small farmer association) ▪ FAO ▪ Programa Nacional Semillas (national development NGO) ▪ CIAT Bolivia (regional development NGO)
Venezuela	▪	▪ Fundación Polar (national development NGO) ▪ Proyecto FIDA (IFAD-funded project)

Two alliances that have been established in 2003 are of particular interest.

a) With ITDG in Peru. After recent restructuring, this international NGO, with its regional HQ in Peru, decided to focus more on business and product-chain approaches to rural development. ITDG has gained valuable expertise in the area of RBDS, with two schemes, one involving the organization of rural service centers and the other with local rural experts for farmer-to-farmer technical assistance. The latter scheme functions well with technical assistance related to animals but not to crops. For sustainability, the local experts sell inputs to farmers. ITDG has also participated in an experience in the Department of Apurimac regarding the establishment of a business model involving a rural marketing enterprise, the formation of local experts, and the supply of inputs and technical assistance to members (small farmers).

The CIAT-ITDG alliance anticipates the signing of an agreement, and the subsequent execution of joint projects funded by donors or clients, the exchange of consultancies and of experiences (pasantías). Both institutions agreed to send short profiles of potential joint activities to be discussed to set priorities; this document has already been sent by the RAeD Project. It appears that some key activities would center on Learning Alliances or joint projects on topics such as market opportunity identification, design of integrated agro-enterprise projects, strengthening of RBDS, development of appropriate business schemes for small farmers, new product development projects encompassing both technology and marketing aspects, participatory adaptation of processing technology (GIAR) and training in basic business concepts and planning instruments.

b) With PRODAR. Based in Lima (Peru) PRODAR is a program dedicated to promoting the development of rural agro-industry in Latin America and the Caribbean. PRODAR, a traditional ally of the RAeD Project, has strengths of interest to CIAT, as follows: (a) its large network of people working in rural agro-industry and its affiliated national networks; (b) its Internet-based communication mechanisms; and (c) its potential to influence government policy favoring rural business development.

PRODAR is about to enter into a new phase, as it incorporates itself fully within the Instituto Interamericano de Cooperación para la Agricultura (IICA). During the planning of this phase, the RAeD Project provided PRODAR with a list of potential areas of collaboration, as follows:

- Training in basic business concepts and planning instruments through formats such as Learning Alliances, short workshops or distance education.
- Training and contest on business and marketing plans, through the same aforementioned formats, with the possibility of including the topic of brands and seals for product differentiation.
- Training, under the same formats, on the Learning and Action Alliance methodologies.
- Training on one or more of the modules of our “Territorial approach to rural business development”, under the same formats.
- Join forces to create an improved version of the Fair Trade information system.
- Development and validation of RBDS systems and methodologies for supplying RBDS.
- Development of local rural business information systems together with user networks.

Related to the first and second points above, it has been agreed to a) undertake a joint distance-education course on basic business concepts, together with REDCAPA; and b) prepare a project involving a Latin American-wide series of workshops on business plan development, to be accompanied by a competitive fund to finance the most promising business plans designed in these workshops with sums going up to US\$30,000.

Activity 5.4. SN-1 project development and promotion

5.4.1. Develop a marketing and communications plan for the project

Contributors: Carlos F Ostertag, Ángela Arenas, Jhon J Hurtado

Collaborators: Rupert Best, Mark Lundy

This year we began implementing the Marketing and Communications Strategy, which the Project defined last year, and which comprises three phases of development:

- (1) **Internal Strategy** (to support the project’s strategic plan, achieve participation, and formalize activities).
- (2) **Internal Strategy for CIAT** (make ourselves known through CIAT internal communications to generate alliances and participation, and formalize activities).
- (3) **Market Strategy for External Clients.**

Internal Strategy

During the development of the Internal Strategy, we have involved personnel of the Cassava Quality Laboratory, with whom we share workspace. An internal survey on perceptions regarding internal communication informed us of: (1) the team’s satisfaction with monthly work meetings, (2) project interest in knowing the team’s

interests and equipment needs, (3) disclosure of new projects, and (4) prior information on work standards and proceedings.

Recommendations were made to:

- (1) Disclose work in progress;
- (2) Follow up project communications (meetings);
- (3) Have an (appropriate) means available to suggest, propose, or comment about or to the Project; and
- (4) Present new members.

Faced with the need to improve information channels for more fluid and clearer internal communication, the project poster and means of circulating publications are being updated, and the project bulletin boards are being redesigned (physically), as complement to monthly meetings.

Through a survey and two meetings of a delegated team, it was decided to make use of the two project bulletin boards in the following way:

- (1) Institutional Bulletin Board: This will show information of interest to the Project and our visitors. It has six sections (Information, Who's who, Who does what, Congratulations, News, Training, and Entertainment). Each staff member is responsible for the management of one section, with a pre-established renewal period.
- (2) Internal Bulletin Board: This will have more subjective information on internal team activities, and will serve to approach and generate an internal culture of participation and exchange. It is divided into eight sections (Messages, Did you know?, Take care of what you have, To think about, Special events, Relaxation, To keep in mind, and Express yourself).

A committee, the Design of information Tools (DhI, the Spanish acronym), was formed for the organization of these media. The DhI is formed of volunteer Project members, and meets once a month.

Thus a process of pre-sensitivity on the use of the Spanish language advances that includes sending educative messages to the Royal Academy. A chronogram of activities to be developed is being prepared for December, with the advice of teachers in Organizational Communication, that includes training in the area of design of communication media, use and design of support tools, systematization, and creation of support groups (editorial group, among others).

Internal Strategy for CIAT

So that the project can be more easily located, we are improving signposting both within and outside our location.

Marketing Strategy for External Clients

A users directory was developed that is at the disposal of the Communications Unit. A list of specialized media was organized into agro-enterprise themes, a list of contacts for circulation, and a list of users specifically interested in the theme of cassava production chains (PPIs, the Spanish acronym).

At present, a portfolio of project products is being developed that is being checked through, and that will serve to make known and promote our products (it will be promoted also through the Web page).

5.4.2. Web site maintained, and a strategy for internal information management developed and implemented

Contributors: Ángela María Arenas, Jhon Jairo Hurtado

Collaborators: Rupert Best, Carlos F Ostertag; Mark Lundy (SN-1); Carlos Chilito, Trinidad Daza, Nathan Russell, Simone Staiger, Jorge Gallego (SN-4); Information Systems Unit, Information and Documentation Unit

1. Web Page

The Web page has become a link between our visitors and project members, through the Project's institutional mail created by the Web page and those project members there available. About 200 e-mails have been answered that asked for information about the Project, publications, proposals to establish alliances and develop research, work vacancies, university consultations, specialized consultations on cassava, information about other CIAT Projects, and some themes outside our competence.

Another sample of this relationship with our visitors is the recordings of the statistics program *Summary*, which CIAT's Web site uses, in which we maintain first position in number of downloaded documents, with an average of 90,000, downloaded per month. The page is the second most visited of CIAT's web pages with 18,000 visits per month. It is also noteworthy that two of the 10 most solicited documents are the presentations of the 'financial profitability model' and 'strategic planning' for agroenterprises. Similarly, the front page in Spanish presents 10,652 visits compared with 4,096 for the front page in English (Figure 5.2.).

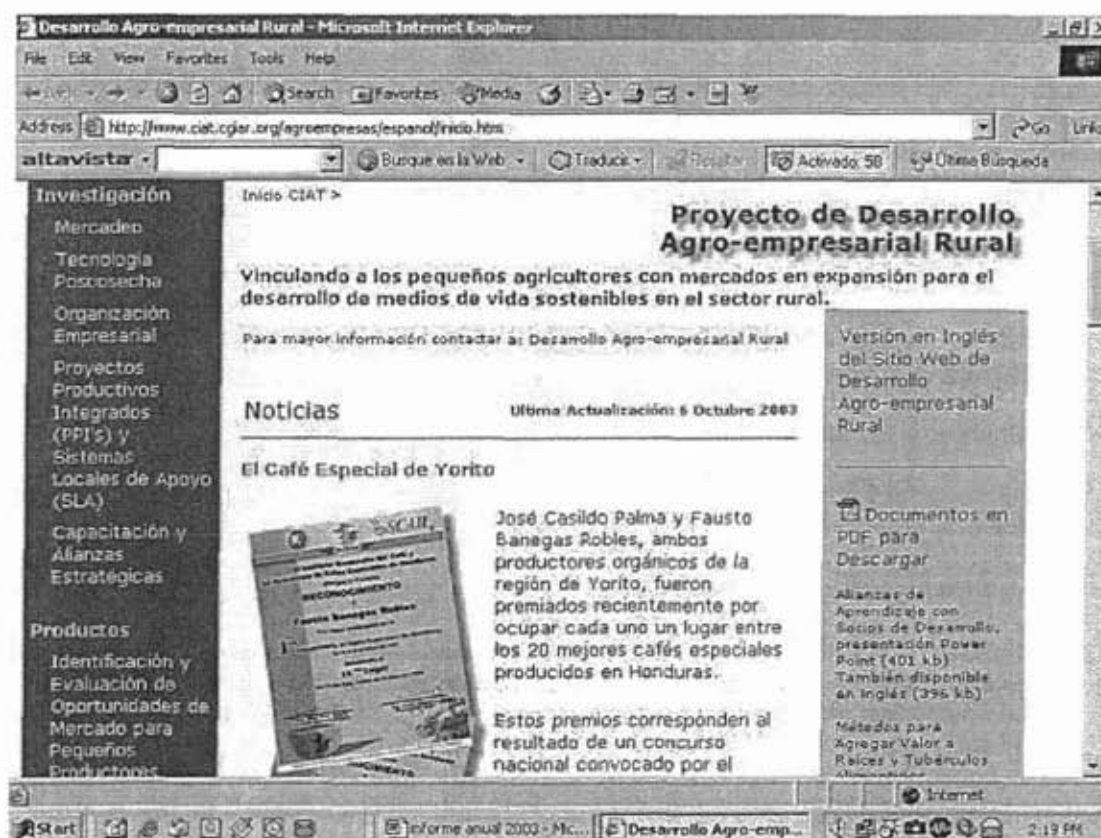


Figure 5.2. The Rural Agro-enterprise Development Project Web page.

Through the Web page, we have announced three international courses on themes related with market chains and territorial orientation. These announcements have been accompanied by circulation strategies that have permitted increased participation in these courses and in the number of visitors to our Web site.

As part of the circulation strategy, the following services specialized in circulating agro-rural themes were identified: 13 electronic Bulletins (of organizations or specialists in the theme), two Users Lists, seven networks, and 16 addresses of representations of organizations, programs, and program offices. Among these we must point out the special support and participation in the diffusion of our activities in:

- Users List of Bio-commerce / Humboldt Institute
- Bulletin INTERCAMBIOS Chorlavi Group No. 27
<http://www.rimisp.cl/boletines/bol27/>
- PRODARNET - Bulletin InformAIR No. 22
- PRODARNET- Position Announcement in CIAT/ Senior Staff in the Rural Agro-enterprise Development Project
- REDESMA - Bulletin 5-10
- REDECO Ecoregional Bulletin No. 30
- CIAT-News - July 24, 2003 Issue: 04
- COLNODO Users List
- InfoNota: Linking small producers with production chains (Costa Rica) ~July (InfoAndina electronic bulletin)
- CEFÉ International (<http://www.cefe.net/>)
- REDCAPA
- AGRECOL Andes Bulletin- October 2002
- Partners of MINGA-IDRC
- Partners of SDC Managua, Office of Cooperation for Central America
- CIAT offices in Central and North America

We are developing a new structure for the page that reflects our work focus (Territorial Orientation for the Development of Rural Enterprises) and the work of each region (Africa, Andean region, Asia, Central America, and the Caribbean). And, jointly with the CIAT Web page, we are developing a profile of our scientists.

2. Documentation Center

Contributors: Sandra Rivera, Jhon Jairo Hurtado

Collaborators: Rupert Best, Carlos F Ostertag, Mark Lundy, Carlos Chilito, Ángela Arenas, Trinidad Daza, Clara Feijoo

The Documentation Center has 2,512 registrations of documents related to themes such as social capital, agro-enterprise information, Local Support Systems (SLA, the Spanish acronym), chains of agro-enterprises, fruits, vegetables, cassava, and *panela* (raw, unrefined sugar), among others. Publications are encountered in audiovisual, digital (diskettes, zips, CD-ROM), and paper form. During this year, 88 new items were added.

The entries available in the Documentation Center are consulted through the Endnote program, available in CIAT, and are physically present, centralized, in an office. At this site, document loans are controlled, with a reported 90 documents consulted between January and September 2003, and the database in Endnote is consulted an average of once a week by Project personnel or external users (CLAYUCA, Cassava Improvement, and IPRA, among others). The most consulted themes are mainly cassava, *panela*, participatory research, and markets.

3. Backup

Contributors: Clara Feijoo, Trinidad Daza

Collaborators: Jhon Jairo Hurtado

During 2002, the Information Systems Unit implemented in the Project a pilot proposal for CIAT that seeks to establish a system of information security, called "Backup", for each user. At present, this initiative is underway in the 12 PCs and a laptop of the Project; the information is stored in a CD-ROM. With the objective of making this process more efficient, a structure of folders has been established in each of the computers which consists of:

- ToBackup: Information on frequently used work
- ToHistory: Publications of other authors and documents over 2 years old
- ToPersonal: Personal information.

In these three folders of each computer, an initial full backup is made that is passed after 15 days to the ToBackup folder, and after 3 months to the other two folders.

Appendix I: Papers, publications and reports of the Rural Agro-enterprise Development Project 2003

Papers published in peer-reviewed journals

Boucher, F. 2003. El sistema agroalimentario localizado de los productos lácteos de Cajamarca : una nueva perspectiva para la agroindustria rural . Article présenté et à la revue d'économie de l'Université Autonome de Mexico (Mexique), il a été accepté et sera publié en 2003.

Requier-Desjardins, D.; Boucher, F.; Cerdan, C. 2003. Globalisation, competitive advantages and the evolution of production systems : rural food processing and localized agri-food systems in Latin-American countries. Entrepreneurship and Regional Development Review, London, UK.

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Best, R and Bokanga, M. Cassava roots and leaves for human, animal and industrial purposes. Submitted for publication in Plant Molecular Biology.

Johnson, N.; Suarez, R.; Lundy, M. The importance of social capital in Colombian rural agro-enterprises, (in review at World Development. Previous version published as CGIAR Program on Collective Action and Property Rights (CAPRI) Working Paper 26, Washington, DC: International Food Policy Research Institute (IFPRI).

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Peters, D.; Nguyen, T.T.; Pham, N.T.; Mai, T.H.; Nguyen, T.Y.; Keith, F. Rural Income Generation through Improving Crop-based Pig Production Systems in Vietnam: Diagnostic, Interventions, and Dissemination. Agriculture and Human Values. (accepted for publication in 2004).

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Peters D.; Son, N.T.; Thach, P.N.; Mui, N.B. Piglet Enterprise Assessment and Improvement in Cat Que Commune, Vietnam. Submitted to Journal of Livestock Research and Rural Development.

CIAT publications

Gottret, M.V.; Ospina, B. 2004. Twenty years of cassava innovation in Colombia: Upscaling under different political, economic, and social environments. In: Pachico, D.

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Córdoba D., M. 2003. El Papel de la Intervención Externa en los Procesos de Innovación para el Desarrollo de Comunidades Marginales de Ladera: El Caso de la Sub-cuenca del Río Cabuya en Colombia. Facultad de Ciencias Sociales y Económicas, Departamento de Sociología, Universidad del Valle, Cali, Colombia.

Sandoval N., V. 2003. La agroindustria rural de producción de almidón agro de yuca en el departamento del Cauca- Colombia. Un ejemplo de sistema agroalimentario localizado. Facultad de Ingeniería y Administración, Departamento de Ingeniería Agroindustrial, Universidad Nacional de Colombia, Palmira.

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Boucher, F.; Riveros, H. 2003. Propuesta para la creación de una plataforma / unidad de investigación-enseñanza "dinámicas de desarrollo empresarial rural sobre la base de la proximidad territorial" en la región andina. *In*: Memoria del Cuarto Foro Regional Andino de Educación Agropecuaria. Caracas, Venezuela.

Boucher, F.; Requier-Desjardins, D. 2002. La concentration des fromageries rurales de Cajamarca: enjeux et difficultés d'une stratégie collective d'activation liée à la qualité. *In*: Actes du colloque : les systèmes agroalimentaires localisés : produits, entreprises et dynamiques locales, Montpellier, France, 16-18 octobre 2002.

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Project Staff Members 2002-03

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Juan Francisco Barona scientist)	International Marketing and Business (visiting
Oscar Andrés Sandoval	Agro-industrial Engineer
Diana Marcela Córdoba	Sociologist (visiting scientist)

All 100% dedication to project unless otherwise indicated

List of Donors

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List of Acronyms and Abbreviations Used

Acronyms

ACIAR	Australian Center for International Agricultural Research
ACT	Agencia de Cooperación Técnica, Ecuador
AHI	The African Highlands Initiative
AIR	Agro-industrial Rural Committee of CIPASLA
APDL	Association of Dairy Product Producers, Cajamarca, Peru
ASARECA	Association for the Strengthening of Agricultural Research in Eastern and Central Africa
ASOPROEX	Asociación de Productores y Expendidores de Pollos del Norte de Cauca, Colombia
AT	Alternative Trade
ATIS	Alternative Trade Information System
BDS	Business Development Services
CAPRI	Collective Action and Property Rights, Systemwide Program of CGIAR
CARE	Cooperative for American Remittances Everywhere
CATIE	Centro Agronómico Tropical de Investigación y Enseñanza, Costa Rica
CCI	Corporación Colombia Internacional
CEGA	Centro de Estudios de Ganadería y Agricultura, Colombia
CETEC	Corporación para Estudios Interdisciplinarios y Asesorías Técnicas, Colombia
CGIAR	Consultative Group on International Agricultural Research
CIAL	Comité de Investigación Agrícola Local, Colombia
CIDES	Comité Inter-institucional para el Desarrollo de Sulaco, Honduras
CIID	Centro Internacional de Investigaciones para el Desarrollo, Canada
CIP	Centro Internacional de la Papa, Peru
CIPASLA	Consorcio Interinstitucional para una Agricultura Sostenible en Laderas, Colombia
CIPAV	Centro para la Investigación en Sistemas Sostenibles de Producción Agropecuaria, Colombia
CIRAD	Centre de coopération internationale en recherche agronomique pour le développement (<i>Center for International Cooperation in Agricultural Development Research</i>), France
CIRAD-AMIS	CIRAD-Département amélioration des méthodes pour l'innovation scientifique, France
CIRAD-CA	CIRAD-cultures annuelles, France
CIRAD-TERA	CIRAD-Département territoires, environnement et acteurs, France
CLAYUCA	Consorcio Latinoamericano y del Caribe de Apoyo a la Investigación y Desarrollo de la Yuca
CLODEST	Comité Local para el Desarrollo Sostenible de la Cuenca del río Tascalapa, Honduras
CNEARC	Centre national d'études agronomiques des régions chaudes, France
CODESU	Corporación para el desarrollo sostenible de Ucayali, Peru

COAPRACAUCA	Cooperativa Agraria de Productores y Procesadores de Yuca del Cauca, Colombia
CONDESAN	Consorcio para el Desarrollo Sostenible de la Ecorregión Andina, Peru
CORFOCIAL	Corporación para el Fomento de los Comités de Investigación Agropecuaria Local, Colombia
CORPOICA	Corporación Colombiana de Investigación Agropecuaria
CORPOTUNIA	Corporación para el desarrollo de Tunia, Colombia
CreA	Centro Regional Andina of IICA
CRESE	Centro Regional de Servicios Empresariales, Peru
CRS	Catholic Relief Service, Honduras
CTB	Corporación Técnica Belga
DEPAM	Desarrollo Participativo Amazónico
DER	Desarrollo Empresarial Rural, Colombia
DFID	Department for International Development, UK
DICTA	Dirección de Investigación de Ciencias y Tecnología Agrícola, Honduras
EAPZ	Escuela Agrícola Panamericana Zamorano, Honduras
EARTH	Escuela Agrícola de la Región Tropico Humedo, Costa Rica
ERI	Enabling Rural Innovation
FAO	Food and Agriculture Organization of the United Nations, Italy
FIAR	Fondo de Investigación en Agro-industria Rural of PRODar
FLO	Fair Trade Labeling Organisation
GFAR	Global Forum on Agricultural Research
GIAR	Grupos de Investigación en Agro-industria Rural
GIPhT	Global Initiative on Post-Harvest Technology
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit (<i>German Agency for Technical Cooperation in English</i>)
IAP	Integrated Agro-enterprise Projects
IARC	International Agricultural Research Center
ICFR	Institute for Crop and Food Research, New Zealand
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics, India
IDRC	International Development Research Center, Canada
IESA	Investigación y Extensión en Sistemas Agropecuarias, Chile
IFAD	International Fund for Agricultural Development, Italy
IFPRI	International Food Policy Research Institute, USA
IFSA	Integración Fluvial de Sur América
IICA	Instituto Interamericano de Cooperación para la Agricultura, Chile and El Salvador
IITA	International Institute of Tropical Agriculture, Nigeria
IMCA	Instituto Mayor Campesino, Buga, Colombia
INRA	Institut National de Recherche Agronomique, France
INRM	Integrated Natural Resource Management meeting
IPRA	Investigación Participativa en Agricultura / <i>Participatory Research in Agriculture</i> of CIAT
IRD	Integrated Rural Development Program, Colombia
ISS	Institute of Social Studies
ITDG	Intermediate Technology Development Group, Zimbabwe
JIRCAS	Japanese International Research Centre for Agricultural Sciences
LA	Latin America
LAC	Latin America and the Caribbean
LADAF	Latin American Development Assistance Facility
LBSU	Local Business Support Units
MADR	Ministerio de Agricultura y Desarrollo Rural, Colombia

MAE	Ministère des Affaires Etrangères, France
MCCH	Fundación Maquita Cushunchic, Ecuador
MINGA	Alternative Approaches to Natural Resource Management in Latin America and the Caribbean Project
MOI	Ministry of Industry, Thailand
NRI	Natural Resources Institute (UK see TPI)
NZODA	New Zealand Overseas Development Agency
OIT	Organización Internacional de Trabajo
PADEMER	Proyecto para el Desarrollo de la Microempresa Rural, Cauca, Colombia
PDPM	Programa de Desarrollo y Paz del Magdalena Medio
PHTI	Post-Harvest Technology Institute, Vietnam
PRGA	Participatory Research and Gender Analysis Programs
PRODAR	Programa Cooperativa de Desarrollo Agro-industrial Rural (Latin America and the Caribbean)
PRODESSA	Proyecto de Desarrollo de San Dionisio, Nicaragua
PRONATTA	Programa Nacional de Transferencia de Tecnología, Colombia
RAC	Rural Agro-industrial (or Agro-enterprise) Committee
RAeD	Rural Agro-enterprise Development Project of CIAT
SADC	Southern Africa Development Community
SARRNET	Southern Africa Root Crops Research Network
SDC	Swiss Development Cooperation
SEAMEO	South East Asian Ministers of Education Organisation
SEARCA	Southeast Asian Graduate Studies and Research Center for Agriculture
SENA	Servicio Nacional de Aprendizaje, Colombia
SERTDESO	Servicios Técnicos para el Desarrollo Sostenido, Honduras
SIUPA	Systemwide Initiative on Urban Agricultura
SMMEIT	Small, Medium, and Micro-enterprises, Innovation, and Technology program of IDRC
SPSS	Statistical Package for Social Scientists
SWNM	Soil Water Nutrient Management program (Systemwide program of the CGIAR)
UPWARD	Users' Perspectives with Agricultural Research and Development, Manila, Philippines
SWOT	Strengths, Weaknesses, Opportunities, and Threats analyses
UCOSD	Union of Organized Farmers of San Dionisio
UMATAs	Unidades Municipales de Asistencia Técnica Agropecuaria, Colombia
UNA	Universidad Nacional Agraria
UNIVALLE	Universidad del Valle, Colombia
UPWARD	Users' Perspectives with Agricultural Research and Development, Manila, Philippines
USAID	United States Agency for International Development, Washington
WWW	World Wide Web

Abbreviations

FPR	farmer participatory research
GIS	geographic information systems
GOs	government organizations
IDOP	identificación y evaluación participativa de opciones de mercado

IRR	internal rate of return
LCMI	local capacity for market intelligence
MOI	market opportunity identification
NARS	national agricultural research systems
NGOs	nongovernmental organizations
NPV	net present value
NRM	natural resource management
PD	participatory diagnosis
PMR	participatory market research
PPIs	proyectos productivos integrados
R&D	research and development
SAL	servicios de apoyo local
SIAL	sistema agroalimentario localizado
TAE	Técnico Agricultor Extensionista

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PROJECT SN-3

Participatory Research Approaches for Reducing Poverty and Natural Resource Degradation

PROJECT SN-3: PARTICIPATORY RESEARCH APPROACHES FOR REDUCING POVERTY AND NATURAL RESOURCE DEGRADATION

Project Overview

Objective:

To develop and disseminate participatory methodological approaches, analytical tools, new knowledge and organizational principles that strengthen the capacity of R&D institutions to respond to the demands of stakeholder groups that contribute to improving levels of well-being and integrated agro ecosystem management and conservation (IAEM).

Description:

Details of the Project 's seven major outputs for the years 1999-2003 are given in the logical framework. Specific activities on a per-output basis are shown in an abbreviated work breakdown structure for this year.

Outputs:

Participatory methodological approaches, analytical tools and autochthonous knowledge that lead to the incorporation of farmers' and other end-users' needs in IAEM, developed for interested R&D institutions
Organizational strategies and procedures for participatory research (PR), developed
Professionals and others trained as facilitators of PR
Material and information on participatory methodological approaches, analytical tools, autochthonous knowledge and organizational principles, developed
Impact of IPRA Project activities, documented
Internal projects and other institutions supported and strengthened in conducting PR
Capacity of the IPRA team, strengthened

Gains:

An approach for "Enabling Rural Innovation" that applies a "Resource to Consumption" framework to link farmer experimentation, participatory market research, and the need to invest in the resource base upon which increased production and income depend.
Community-based participatory monitoring and evaluation systems, that are managed and used by rural people to promote self-reflection and learning, and to monitor change in their communities, tested in 3 countries in LAC.
A model adapted for build capacity of technical personnel and local communities, in establishing and supporting participatory monitoring and evaluation systems, tested and evaluated in 3 countries in Latin America.
The participatory monitoring and evaluation capacity building model adapted to African conditions
A methodology for conducting Impact Assessment of PR methods developed and tested in at least one country
Second order associations of CIALs, with the objective of sustaining and strengthening CIALs, established in two countries in Latin America.
A set of self-financing mechanisms has been identified to extrapolate them to other farmer organizations.

An increase in the number of scientists and projects applying participatory methods within CIAT research.

More involvement of end users at earlier stages in the technology design.

With the continued working with CIALs, there is a marked increase in the self-management and decision-making capacity in at least 290 communities affecting at least 21.000 rural farming families, in 5 countries in Latin America.

Continued strengthening of the capacity of technical personnel and farmers to develop and support rural Agro enterprise projects for adding value to agricultural products

Institutionalization of CIAL methodology in national agricultural institutions in two countries of Latin America.

Scaling up of experiences with community organizations, for participatory research with NGO youth networks in 3 countries of Central America.

A capacity development strategy for SIBTA in Bolivia has been designed and put into action.

A large number of institutional agreements has been signed with national and local organizations that enable the articulation of marginal communities demands to the new SIBTA mechanisms in Bolivia.

Milestones

2002

Participatory IPM projects established in at least 5 CGIAR and NARS centers. Methods for participatory research on NRM at the landscape scale applied in at least one site.

PPB approaches institutionalized in at least three NARS (one in each of Africa, Asia, and LAC) on a national scale. At least 15 CGIAR and NARS IPM project leaders trained in participatory approaches. Pilot organizational model for rural tele centers established at one site. Methods for PR on NRM at the landscape scale applied in at least one site.

A community-based participatory monitoring and evaluation system developed, tested and evaluated, in at least two countries in Latin America

Associations of community-based farmer research groups formed in at least four countries. Participatory projects for integrated management of AES health established in at least five CGIAR and NARS centers.

CIAL approach validated in Africa. Methods for participatory agro enterprise development systematized and available for users. Seed enterprises established at village level in two African countries.

A method to institutionalize participatory monitoring and evaluation and participatory research approaches within research and development (R&D) systems, developed and tested in one country in Latin America and at least one country in East Africa.

2003

Associations of community-based farmer research groups providing services and supporting the CIALs and with strategic alliances with R&D institutions.

A method for testing and evaluating technologies in a resource to consumption (R-to-C) framework developed, tested, and evaluated in two countries in Africa.

FPR approaches developed in Latin America are validated in Africa. Methods for participatory agro enterprise development systematized and available for users. Seed enterprises established at village level in two African countries.

A method to institutionalize participatory monitoring and evaluation and participatory research approaches within research and development (R&D) systems, developed and tested in one country in Latin America and at least one country in East Africa.

A model for building the capacity of communities to establish and apply participatory monitoring and evaluation systems adapted from LAC to African conditions

Participatory Impact Assessment to derive lessons and impacts of PR methods conducted in at least one country

A methodology for conducting Impact Assessment of PR methods on livelihoods, developed and tested in at least one country

2004

Capacity of national partners to implement and support PM&E and PR processes established within R&D institutions in at least 2 countries in Latin America and at least two countries in East Africa.

Lessons from resource to consumption (R-to-C) framework tested and validated in at least two countries in Latin America.

A methodology for conducting Impact Assessment of PR methods developed and tested in at least two countries in Latin America

Impact assessment analysis to derive lessons and impacts of PR methods on livelihoods, conducted in at least three countries in Latin America.

2005

Capacity of national partners to implement and support PM&E and PR processes established within R&D institutions in at least 2 countries in Latin America and at least two country in East Africa.

Lessons from resource to consumption (R-to-C) framework tested and validated in at least two countries in Latin America.

2006

National team of trainers/facilitators capacitated and scaling up PM&E and PR processes at national level

Local capacity to identify demands and develop projects that respond to these demands, that feeds into Bolivian national agricultural research and technology transfer systems

Results of Impact Assessment studies to derive lessons and impacts of PR methods on livelihoods, disseminated widely and applied to scale PR activities in other countries

PM&E systems evaluated and lessons applied to develop guidelines and principles appropriate for Africa

Users

This work will benefit poor farmers, processors, traders and consumers in rural areas, especially in fragile environments. Researchers will receive more accurate and timely feedback from users about acceptability of production technologies and conservation practices. Researchers and planners will profit from methods for conducting adaptive research and implementing policies on natural resource conservation at the micro level.

Collaborators

NARS, NGOs, universities, CGIAR SP-PRGA members, SP-I PM members

Linkages with CGIAR system

Convener of the SP-IPM project; PRGA and SWNM system-wide program, CIP, AHI and ICRAF

CIAT project Linkages

Inputs to, PE-3; PE-4, IP-1, IP-2, IP-3, IP-5, SN-1, SN-2, SB-2, SB-3 BP-1; Outputs from, IP-2, IP-5, PE-3, BP-1, SN-1, SB-3, Information Services.

Project Objective:

To develop and disseminate participatory methodological approaches, analytical tools, autochthonous knowledge and organizational principles that strengthen the capacity of R&D institutions to respond to the demands of stakeholder groups that contribute to improving levels of well-being and integrated agroecosystem management and conservation (IAM).

O U T P U T S	Participatory methodological approaches, analytical tools and autochthonous knowledge that lead to the incorporation of farmers' and other end-users' needs in IAEM, developed for interested R&D institutions	Organizational strategies and procedures for PR, developed	Professionals and others trained as facilitators of FPR
A C T I V I T I E S	<p>Develop a participatory model for involving farmers in the selection and adaptation of multi-purpose forages</p> <p>Develop a model to build capacity of technical personnel and local communities in establishing and supporting PME systems</p> <p>Develop a capacity building and research model to link farmer participatory research (FPR) and participatory market research (PMR), in a "resource-to-consumption" context</p> <p>Develop a capacity building method to strengthen farmer experts' knowledge and skills in the enhancement and conservation of agro biodiversity</p> <p>Develop a methodology for conducting Impact Assessment of PR methods on livelihoods</p>	<p>Identify viable mechanisms of self-financing for groups of Latin American farmers</p> <p>Document the experience in implementing the PME systems in Honduras and Bolivia</p> <p>Scaling up impacts: Experiences with testing PME model in Colombia</p> <p>Develop a strategy of scaling out and up in Colomi through the municipalities</p> <p>Implement proposal on the integration of the CIALs in NRM research (initiate organization of collective action in the environment of micro watersheds)</p> <p>Establishment of PME Systems in Bolivia to contribute to the strengthening of the new Bolivian system of Review and Technology</p> <p>Establish criteria for selecting pilot areas and expansion of activities for establishing participatory focuses in Bolivia</p> <p>Strategy for capacity development in FPR and PME in Bolivia</p> <p>Strategy document: The Resource-to-Consumption Approach as a Strategy for</p>	<p>Strengthen the process participatory in the multipurpose forages project through the representatives of each country (forages workshop in Nicaragua)</p> <p>Report on first workshop on participatory methods held in Cochabamba, Bolivia</p> <p>Hold PME evaluation workshop to derive lessons and develop appropriate model for Bolivia</p> <p>Report on a capacity-building model for rural communities to develop skills in rural agroenterprise development (Module II)</p> <p>Guide for building capacity on, "Enabling Rural Innovation" that links farmer experimentation, participatory market research, investment in the resource base and gender</p> <p>Guide on conducting participatory diagnosis for "Enabling Rural Innovation", approach</p> <p>Report on Stakeholder Consultative</p>

		<p>"Enabling Rural Innovation (ERI)"</p> <p>Develop a scaling-up strategy for "Enabling Rural Innovations"</p> <p>Document experiences with establishing "Enabling Rural Innovation" approach in Eastern and southern Africa</p> <p>Document experiences with community-based PM&E systems in Latin America</p>	Meeting to develop a collaborative PM&E research project in Kenya
O U T P U T S	Material and information on participatory methodological approaches, analytical tools, autochthonous knowledge and organizational principles, developed	Impact of IPRA Project activities, documented	Support and strengthen internal projects and other institutions in conducting PR
A C T I V I T I E S	<p>Outline on PR in forages; discussion of central topics</p> <p>Analytical strategies for database information (quantitative and qualitative)</p> <p>Design testing of the instructional unit on PR applied to forages; description of the content</p> <p>Promote and distribute material developed by IPRA</p> <p>Present papers at international meetings and congresses</p> <p>Input statistics related to progress and/or information stored in the database</p> <p>Update and reorganize the IPRA Web Page to enhance it's effectiveness in disseminating information</p> <p>Book chapter written entitled "Extension through Farmer Research: Local Agricultural Research Committees (CIALS) in Latin America" for a book on new approaches to extension.</p>	<p>Report of baseline studies for Bolivia, Ecuador</p> <p>Implement case study of CIAL El Diviso (rural agroenterprise)</p> <p>MSc thesis: Applying the sustainable-livelihoods approach to assess the impact of CIALs El Jardín, Las Cruces, San Bosco, Cinco Días</p> <p>Conduct an analysis of experiences of the CIPASLA model of participatory management of watershed</p> <p>Report written on the institutionalization of CIALs in Ecuador</p> <p>Report written on the institutionalization of CIALs in Ecuador</p>	<p>Hold annual national meeting of CIALs in Honduras, Ecuador and Colombia</p> <p>Prepare final report on the tours and workshops to CIPASLA, ASOBESURCA and CORFOCIAL</p> <p>Provide technical support and follow-up activities to strengthen CIPASLA and ASOBESURCA</p> <p>Provide technical backstopping and support to CORFOCIAL</p> <p>Evaluate and select multipurpose forages for crop/livestock systems with farmer participation</p> <p>Develop an interactive CIAL database system where farmers and technicians can make consultations exchange information</p>

O U T P U T	Capacity of the IPRA team, strengthened		
A C T I V I T I E S	<p>Hold planning workshop for IPRA</p> <p>Maintain functional structure for horizontal leadership (co-coordinators)</p> <p>Organize series of cross-Program seminars to interchange experiences and receive training in new approaches, methodologies and analytical tools (impact, finances, library, case study, institutionalization, PME)</p>		

Narrative Summary	Measurable Indicators	Means of Verification	Important Assumptions
<p>Goal: Develop and apply knowledge, tools, technologies, skills and organizational principles that contribute to improving the IAM¹ and the levels of well being</p>	<p>Application of participatory methods, analytical tools and organizational principles by R&D organizations that lead to the incorporation of the farmers' and others end-users' IAM-related needs</p> <p>Use of Project products at additional reference sites in two agro ecosystems (hillsides and forest margins) of CIAT's mandate in 5 years</p> <p>Use of Project products by a minimum of 3 institutions outside the LAC region by the end of the 5th year</p> <p>Improvement in the well being of the end-users at the respective reference sites</p>	<p>Projects, plans and reports of public sector entities, donors, the NGOs, grassroots organizations, second-order organizations at the reference sites and in the agro ecosystems of CIAT's mandate, which refer to the use of the Project's products</p>	<p>Institutions committed to the principles of PR</p> <p>Stable institutional leadership</p> <p>Committed communities</p> <p>Favorable environmental and agrarian policies</p> <p>Absence of social conflict at the reference sites</p> <p>Data available from the reference sites</p> <p>Availability of information from partners</p>

¹ IAM = Integrated Agroecosystem Management

Narrative Summary	Measurable Indicators	Means of Verification	Important Assumptions
<p>Project purpose: Develop and disseminate participatory methodological approaches, analytical tools, autochthonous knowledge and organizational principles that strengthen the capacity of the R&D institutions to respond to the demands of stakeholder groups that contribute to improving the levels of well being and IAM</p>	<p>No. of R&D organizations applying participatory methods, analytical tools and organizational principles</p> <p>No. of entities in the LAC region teaching participatory methods</p> <p>No. of meetings held among stakeholder groups</p> <p>No. of participatory projects implemented by the R&D institutions</p>	<p>Impact study</p> <p>Institutional reports</p> <p>Publications</p> <p>Proceedings</p>	<p>Economic stability of institutions</p> <p>Financing for training activities and publication/dissemination of materials</p> <p>Institutions willing to prepare and support facilitators and to share information</p> <p>End-users above all the producers—willing to participate</p>
<p>Outcomes:</p> <p>Participatory methodological approaches, analytical tools and autochthonous knowledge that lead to the incorporation of the farmers' and others end-users' IAM-related needs, developed for interested R&D institutions</p>	<p>No. of methodological approaches developed or adapted and of analytical tools developed for the IAM</p>	<p>Project reports</p> <p>Publications</p> <p>Proposals presented</p>	<p>Good coordination and integration among the collaborators</p> <p>Minimal conflicts in meeting demands</p> <p>Full participation of stakeholder groups</p> <p>Field staff fulfilling their role as facilitators</p> <p>Data available from the reference sites</p> <p>Internet system functioning well</p>

Narrative Summary	Measurable Indicators	Means of Verification	Important Assumptions
Organizational strategies and procedures for PR, developed	Submit and approve Project log frame No. of strategies and organizational procedures for PR adopted and adapted	Project reports Publications	
Professionals and others trained as facilitators of FPR	No. of professionals, technicians and farmer-researchers trained in the PR methodology	Project reports	
Material and information on participatory methodological approaches, analytical tools, autochthonous knowledge and organizational principles, developed	No. of visits to the Web sites No. of requests for materials and information No. of materials published	Project reports Publications Case studies written	

Narrative Summary	Measurable Indicators	Means of Verification	Important Assumptions
Internal projects and other institutions supported and strengthened in doing PR	No. of internal projects supported No. of external organizations strengthened No. of participatory projects implemented by internal projects and other institutions	Project reports Publications of internal projects and other institutions	
Capacity of the SN-3 Project team, strengthened	No. of team meetings No. of seminars and workshops organized and/or received by the team or its members	Project reports	
Impact of the SN-3 Project activities, documented	Depending on the nature of the study; e.g., in CIALs, no. of host countries, total no. of CIALs (active, inactive, mature), research capacity, self-management capacity, institutions participating, gender breakdown, diversity of research topics, no. of people benefited, no. of small agro enterprises benefited, no. of community-service actions, no. of facilitators and trainers prepared, no. of second-order organizations formed, no. of requests for publications and no. of training materials	<ul style="list-style-type: none"> Case studies, PME reports and databases, impact studies 	

**OUTPUT 1. PARTICIPATORY RESEARCH APPROACHES
ANALYTICAL TOOLS AND INDIGENOUS KNOWLEDGE THAT LEAD TO
THE INCORPORATION OF FARMERS' AND OTHER END-
USERS' NEEDS IN INTEGRATED AGROECOSYSTEM MANAGEMENT,
DEVELOPED FOR INTERESTED R&D INSTITUTIONS**

Milestones

Moving from constraint to opportunity

Procedure of Monitoring and Evaluation developed to be evaluated and disseminated in some Countries

Procedure for participatory selection of cassava varieties, analyzed

Learning from PME experiences in Latin America: A strategy to capture the results of development changes at the community level

Researcher: Luis Alfredo Hernández R.²

Highlight:

Successful strategy for obtaining M&EP results-chain has been developed.

Abstract

Farmer groups have tested several ways to verify expected community results from the Participatory Monitoring and Evaluation (PME) process in Latin America. In some cases, however, these have failed to identify and measure short-term results (outputs), medium-term results (outcomes) and long-term results (impact) efficiently at the level of farmers' groups. It has now been recognized that there are problems that limit facilitators' abilities to interpret and find appropriate indicators for measuring those results. Conceptualization of monitoring, evaluation, participation and indicators and developing a strategy to explore in depth the meaning of those terms at the community level could be a successful way to resolve those problems. This article, based on the author's experience in Cauca Colombia, describes some alternatives for resolving these barriers. More importantly, the author explains how these apparent obstacles in the process can actually be exploited as opportunities to enhance the PME process and thus result in benefits for farmers' groups and scientists.

Introduction

Participatory monitoring and evaluation (PME) has a dual purpose: It is a management tool that enables people to improve their efficiency and effectiveness. It is also an educational process in which participants increase awareness and understanding of the various factors that affect them (Stephens, 1988). This means participation by the target beneficiaries in decision-making and planning throughout the implementation process and in sharing benefits. Hence monitoring and evaluation (M&E) demand an in-depth comprehension of the processes, a strong commitment to develop the PME systems further themselves, and an efficiently strategy for understanding information generated during the process.

² Research Associate I, SN-3 Project, CIAT, Colombia

Research questions

These barriers pose serious constraints to an effective PME process and must be resolved by answering the following research questions:

How to obtain a better understanding of the M&E process

How to reach short-term results (outputs), medium-term results (outcomes) and long-term results (impact)

This paper draws on the author's experience of working with farmers' groups to discuss ways of moving from constraints to opportunities in PME in order to improve the information obtained. The purpose of this paper is to promote a better understanding of PME results through a useful strategy for taking information and teaching the process. It is targeted toward facilitators and farmer groups involved in the PME process.

Case study and directions

The strategies proposed here are based on the author's involvement in experiences with PME in Cauca, Colombia. The author analyzed a sample of 9 CIALs with an established PME process (La Unión 1 and 2, San Isidro, Carpintero, El Pinar Mujeres, La Esmeralda 1 and 2, and Las Lajas). The preliminary results of this analysis permitted testing the following procedure:

Understanding key concepts

Strategy 1 and directions. Farmers and facilitators of PME should have a clear vision of the process. Without a clear vision of what PME hopes to achieve, it is difficult to define results clearly (Stephens, 1988). Consequently, we should explain, "What does participation mean within a PME process? In other words, farmers need to understand that PME has been found especially valuable for small farmer development. This means that PME requires the involvement of communities members in:

Planning the general and specific objectives at the community level and the areas to monitor and evaluate

Deciding the activities that permit reaching those objectives

Selecting indicators

Collating and tabulating data

Analyzing the results

Sharing information with others members of the communities

Using PME information for their own purposes.

This proposal consists in designing a step-by-step procedure, describing relationships in each one (using graphics is the best way). Figure 1 describes a sequential process and introduces the cycle concept.

Strategy 2 and directions. There are different levels of results that seek to capture the development changes that occur: Short-term results or outputs, medium-term results or outcomes, and long-term results or impact (CIDA, 2000). PME has similar results linked to what is commonly referred to as a "results chain," so it is possible to find the cause-effect relationship of results as follows: Objectives, specific objectives, outputs, outcomes and impact should be defined as the "results chain." From the overall objective it is possible to derive specific objectives and

then outputs, outcomes, impact and indicators can be identified as shown in Table 1.



2. Deciding activities

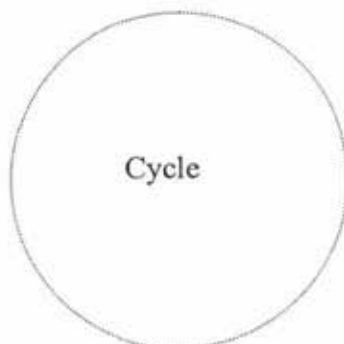


3. Selecting indicators

4. Collating and tabulating data,



1. Planning objectives
(key question: why are you grouped as a CIAL?)



7. Using PME information



6. Sharing information



5. Analyzing the results.

****Cartoons adapted by the author.**

Source: Cartoons drawn by Dave Daniel In: "Developing forage technologies, with smallholder farmers" Werner and Peter Horne. ACIAR Monograph No. 8

At the beginning of the process, build up the overall objective and then break it down into specific objectives. For each specific objective, find strategies (activities or actions, conditions and criteria) and indicators (see the sequential order proposed in the following list).

Overall objective

Specific objectives

Outputs or short-term results and indicators

Outcome or medium-term results and indicators.

Long-term impact and indicators

Preliminary information from the PME process in the CIALs in Cauca, Colombia (La Unión 1 y 2, San Isidro, Carpintero, El Pinar Mujeres, La Esmeralda 1 y 2, and Las Lajas) has been used to identify the following common objectives in all the CIALs in Cauca:

Do research in: common beans, maize, cassava, sugarcane, potatoes, etc.

Look for funds

Improve the CIAL's organization

Manage projects

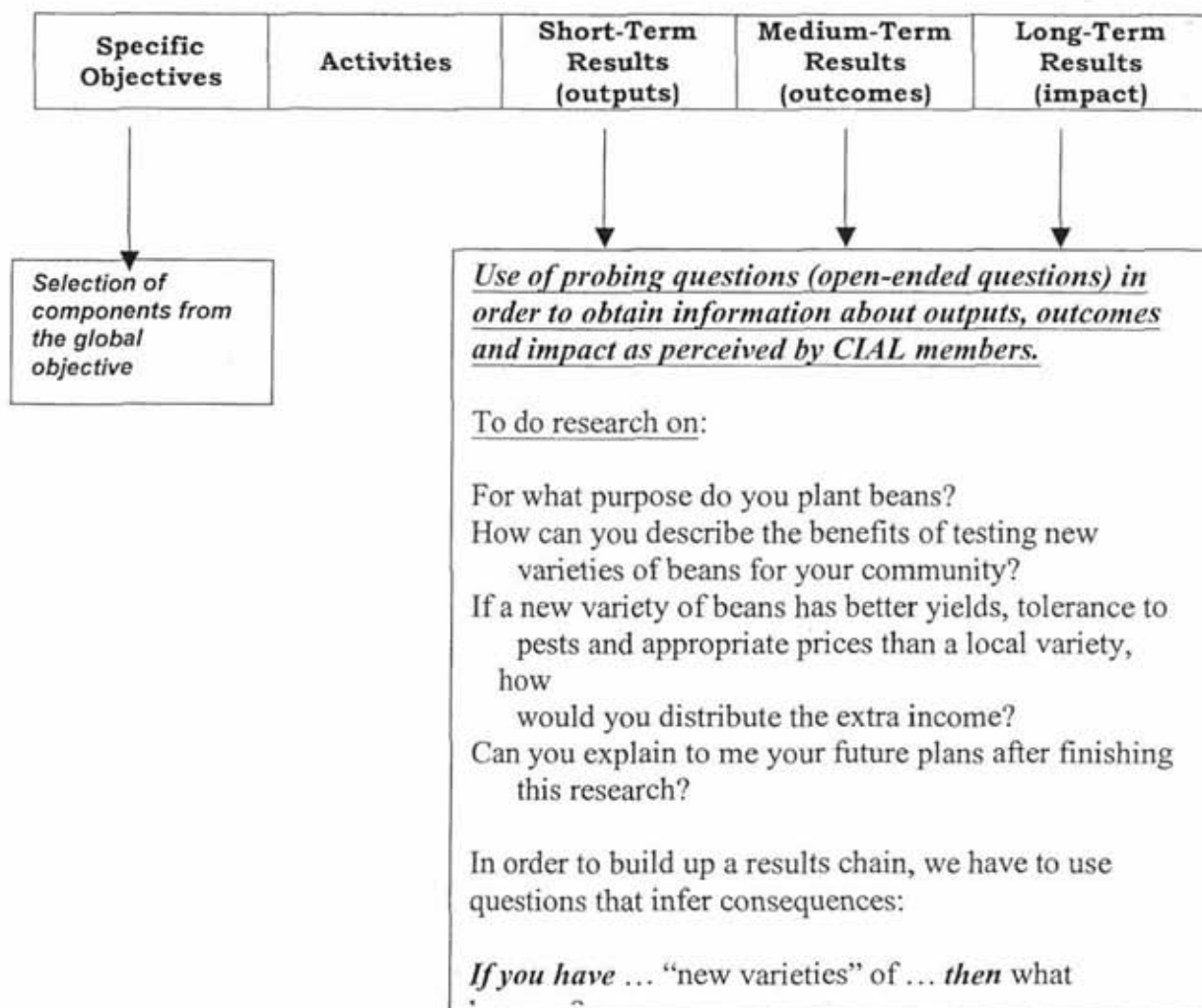
Develop rural agroenterprises

Based on this information, the author developed a proposal of the "results chain" for two specific objectives (Table 1).

Table 1. Chain results (adapted by author, 18 July). Source Cauca CIALs.

Specific Objectives	Activities	Short-Term Results (outputs)	Medium-Term Results (outcomes)	Long-Term Results (impact)
<p><u>Do research on:</u></p> <p>Beans, maize, cassava, sugarcane, potatoes or varieties</p> <p>Indicators:</p>	Planting new alternatives under farmers' conditions (technological supply)	<p>Preliminary selection of new alternatives</p> <p>Level of knowledge as regards new technological options, through Informal interviews (community members)</p>	<p>Farmers interested in novel alternatives</p> <p>No. of varieties planted under community's conditions</p> <p>Level of satisfaction related to research progress</p>	<p>Improve the quality of life in terms of living conditions (e.g., food security)</p> <p>Level of well-being as perceived by local population</p> <p>% in assets of specific community</p>
<p><u>Look for funds</u></p> <p>Indicators:</p>	<p>Hold raffles</p> <p>Hold bingos</p> <p>Have football games</p> <p>Hold festivals</p>	<p>Increase CIAL's funds</p> <p>Income and debits balance</p> <p>Monthly reports of income.</p>	<p>Increase loan rates among CIAL members</p> <p>Level of satisfaction of beneficiaries (at present they are able to solve some problems).</p>	<p>Members of communities in Cauca will have improved their well-being in terms of education and health (need benchmark study for this).</p> <p>No. of communities in Cauca with self-financing.</p>

Strategy 2. The cause-and-effect relationship of results.



Example where Strategy 2 was implemented: Esmeralda II

Overall objective

“CIAL group strengthened in order to create an agroenterprise of maize to improve income and quality of life of community members”

CIAL members

Demetrio Aranda
 Esmeralda Hurtado
 Diego Cifuentes
 José Thomas Aranda
 Martha Lucía Mera
 Aura Lucía Hurtado
 Diego Fernando Cifuentes

Procedure (chain questions)

Probing* questions, consequence questions, questions about activities and indicators (* in order to explore in depth the meaning of some term or saying used by farmer (Guerrero et al., 1993)

Q: *What does “CIAL group strengthened” mean?*
(probing question)

A: That means that we have to improve the group in two ways:
(1) First we ought to increase participation, and (2)
simultaneously we should search for funds.

Q: *If you improve participation, then what happens?* *(probing questions)*

A: *“If we improve participation, then new motivated members*
will be able to increase plots of maize
(the goal is at least 15-20 members).

Q: How do you hope to reach that? **(questions about activities)**

A: Well, we have to show the CIAL's results at the community level (first way), and we can also organize raffles, bingos, “tamales”; simultaneously (second way), as a support to interested people so that will allow us to increase areas and plots of maize in the Esmeralda community.

Q: How do you measure greater participation through those activities described above? **(question regards qualitative indicators)**

A: We can measure it if people have greater spirit, better knowledge about the CIAL's activities, increased levels of satisfaction and also the number of people associated **(qualitative indicators)**. We have to assign responsibilities creating a commission in charge of recording all the information.

Q: How do you measure success in searching for funds? **(question regards quantitative indicator)**

A: We can measure it with our income and debits balance sheet (assessment of results).

Q: *If you increase production areas of maize, then what happens?*

A: As a consequence, *we will have better production,*
then we are going to establish a process for functioning legally.

Q: What kind of action do you need to function legally

A: To find out information at the Chamber of Commerce.
To look for a consultant's office to organize the group (activities)

Q: What is the best indicator that you are working in that way?

A: (1) Increasing level of group knowledge about legal process **(qualitative indicator)**, (2) license for legal functioning.

Q: When you obtain a bigger production and legal functioning, what is the next step?

A: We are going to buy a machine for threshing maize (for the maize company and its byproducts) and after that, some members of the community will be able to raise chickens, hens, and probably they will sell surplus maize to other members of the community. We need to identify different markets and potential clients (**activities**).

Probably we would like to support other maize producers, selling their production or offering services like a rotating fund and technical handling of maize crop.

Q: What are your expectations in terms of income, **if** you achieve the goals mentioned before? (**questions about impact**)

A: In the future, we are going to improve income, health and quality of life in terms of subsidies of health, home orchards, change in the nutritional diet, improvement of the house. We also could generate new jobs.

Q: How can we measure that?

Numbers of subsidies

Changes in the nutritional level of the diet (people sell eggs to buy rice)

Numbers of houses improved

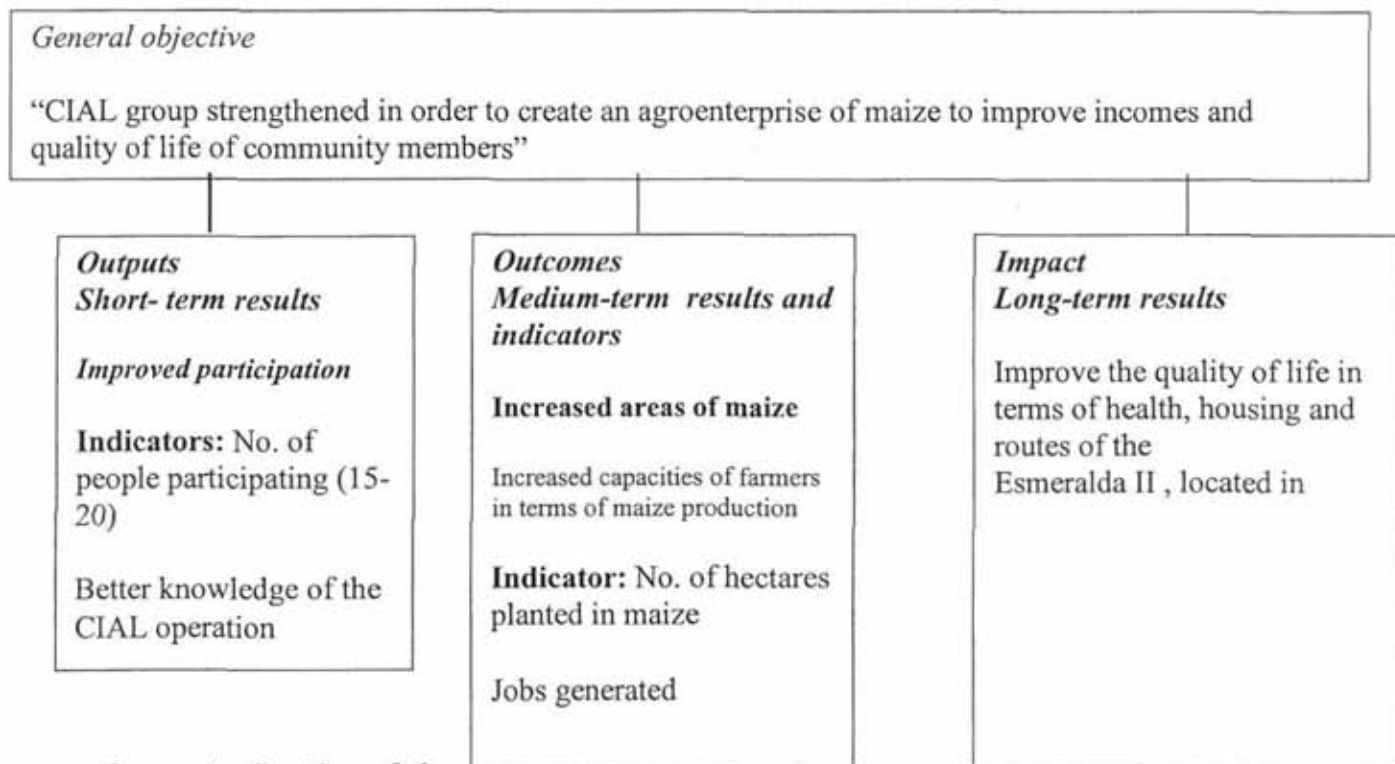
Q: If you had a better income, how would you spend this money?

A: I would like to invest this money in health, housing and paved roads in my community.

Synthesis of information

The challenge is to find outputs, incomes and indicators from the answers.

Following the chain results described in Table 1, it is possible to classify the answers as follows:



Conceptualization of the results chain

Correlations between time (axis X) and overall objective of communities (axis Y) across different levels of goals are presented in Figure 1. At the beginning, communities start with minimum values near the origin (X and Y) in both variables. In the first steps farmers take advantage of the CIAL's research results.

The initial step is the first component of the overall objective, where they identify potential activities in order to reach each component. It is assumed that with increasing trust and knowledge, farmers find opportunities and solutions, and can then can solve problems with new options. Finally, farmers obtain useful feedback to develop and drive development of specific goals responding to farmers' conditions and expectations. Impact assessment is possible at the end of the process. This graphic synthesizes specific objectives and indicators to select relevant moments to verify the accomplishment of the objectives.

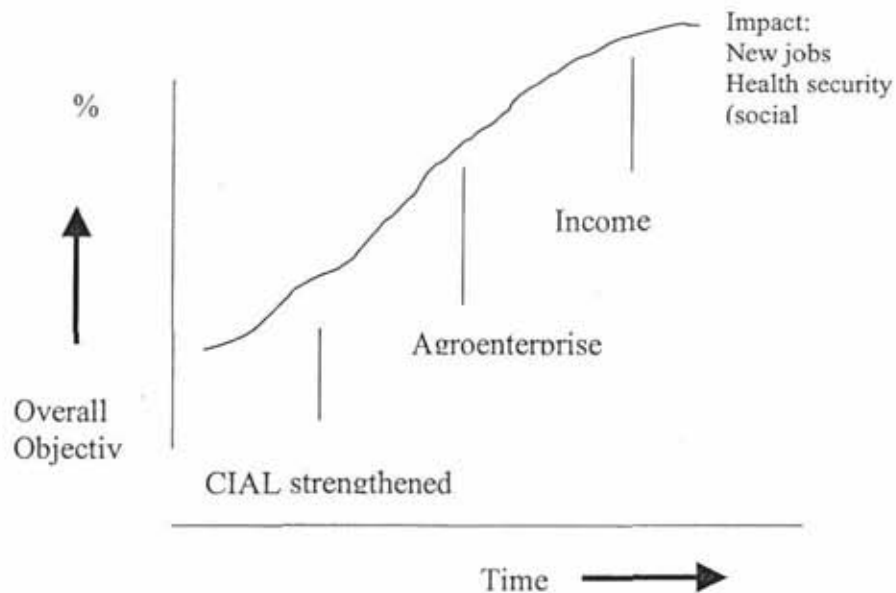


Figure 1. Levels of the overall objective (author's hypothesis)

Conclusions and lessons learned

Farmers need to understand that PME has been found especially valuable for small farmer development. This means that PME requires the involvement of communities members in:

- Planning the general and specific objectives at the community level and the areas to monitor and evaluate
- Deciding the activities that permit reaching those objectives
- Selecting indicators
- Collating and tabulating data
- Analyzing the results
- Sharing information with others members of the communities
- Using PME information for their own purposes.

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Experiences in the establishment of community-based participatory monitoring and evaluation systems (PME) with CIALs in Colombia

Researchers: E.C. Trujillo,³ L.A.Hernandez⁴, S. Kaaria⁵

Highlight:

Procedure of Monitoring and Evaluation proposed to be evaluated and disseminated in some Countries

Overview

In the search for a process to empower and support rural communities in their decision-making process, IPRA has been developing mechanisms for establishing and supporting community-based participatory monitoring and evaluation systems (PME) with the Local Agricultural Research Committees (CIALs). The Participatory Research Approaches project (IPRA) of the International Center of Tropical Agriculture (CIAT) began a process of establishing community-based PME systems in Cauca in 2002 (IPRA, 2002). In 2003 IPRA extended the lessons and tested the approach with the second-order association of CIALs in Cauca Province: CORFOCIAL.

The purpose of this paper is to strengthen the knowledge and experiences with establishing and applying community-based PME systems with grassroots groups. Lessons learned during the process of establishing PME systems in the CIALs of Cauca Province, Colombia, are reviewed.

Background and CIAT experience with PME

PME fulfills basic functions in any development effort because once established, it helps identify problems, measures the progress made toward the objectives, and evaluates the results (FAO, 1996). One of the results expected in the medium and long term is to promote people's potential through their participation in decision-making and the mobilization of this social responsibility and accountability in favor of sustainable human development and capacity building (UNDP, 1997).

PME contributes to the development of rural communities' capacities to identify and solve problems. It is oriented so that the grassroots groups can gather the information needed to evaluate the progress of their projects. In this way PME becomes an instrument to help these groups strengthen their capacity for decision-making and accomplish greater autonomy, which is translated into empowerment of their processes, self-reliance and sustainability.

The PME approach applied by CIAT builds on the concepts and ideas developed by the Institute of Development Studies at University of Sussex (Estrella et al., 2000; Guijt & Gaventa, 1998) and the PIM concept developed by Germann et al. (1996). The PM&E system, which was developed as part of an action research process, was initiated by a student, Kirsten Probst (2002), as part of her PhD dissertation research.

Applying lessons from this earlier work, a strategy was developed in 2002 to build capacity in the CIALs in Cauca Province. They were selected as a learning ground to test this approach because of their proximity to CIAT. In addition, it was envisaged that these

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processes would help strengthen social cohesion, management capacity, learning and reflection, thereby empowering these groups.

Objectives

The overall goal is to establish community-based PME systems that will enable CIALs and their second-order associations to evaluate the progress of their projects and strengthen their capacity for decision-making and accomplish greater autonomy. The specific objectives are to:

- Test, evaluate and adapt the methodology for establishing community-based PME with second-order associations of CIALs
- Analyze and document lessons and experiences and then develop guidelines and principles to enable the large-scale expansion of these approaches in other second-order associations in other contexts

Research questions

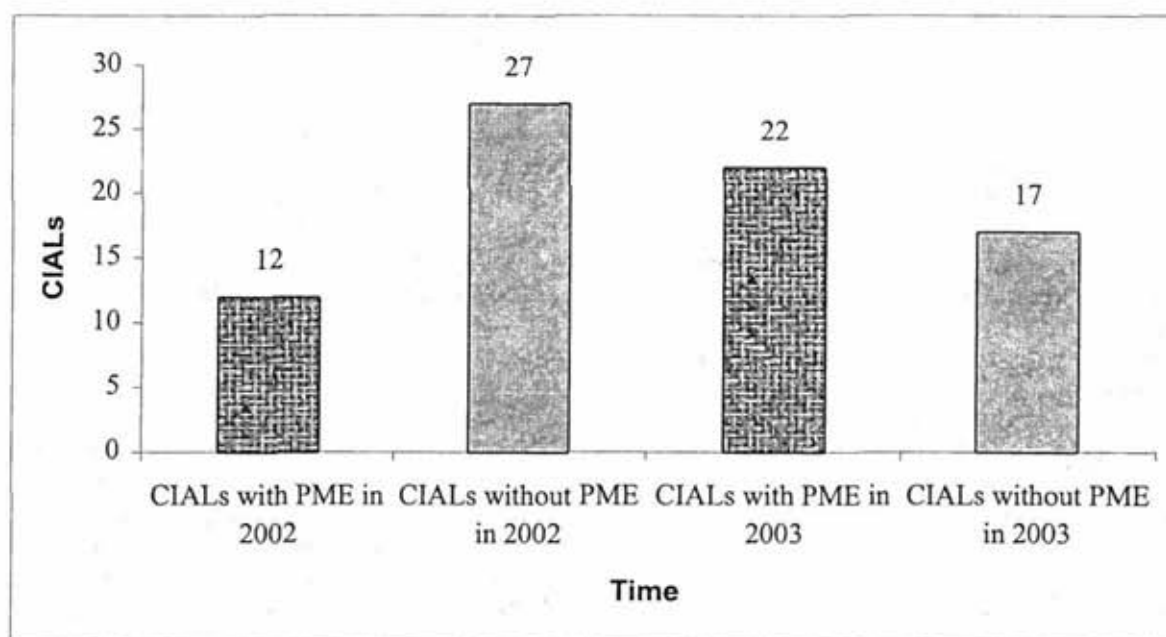
This work will address the following research questions:

- What is the impact of CORFOCIAL on the sustainability and effectiveness of the CIALs?
- How will M&E contribute to enhancing the accountability of the second-order association CORFOCIAL to the CIALs?
- Can the second-order associations to develop timely solutions to their problems and make necessary adjustments to their plans and activities use the information generated by PME?
- Can PME identify quantitative and qualitative indicators of results, effects and impact?
- Does PME promote the sustainability of CIALs?

Progress in the PME process in the CIALs in the Cauca

The goal of establishing the PME systems is to cover all the CIALs that are grouped under CORFOCIAL, which currently number 39. As can be seen in Figure 1, PME systems were partially established in 12 CIALs in 2002; and this year the work was finished, with PME systems being established in another 10 CIALs, for a total of 22 CIALs in Cauca. Annex 1 shows some of the CIAL groups, where the PME systems have been established, with their objectives, activities and indicators.

In 2003 the goal was to have a higher number CIALs from CORFOCIAL with PME systems established, but there were some difficulties that made it impossible to reach that goal. Therefore, we conducted an evaluation with a few CIALs to understand the challenges in the establishment of PME systems.



Problems identified in the establishment of PME systems in Cauca

The CIAL group feels somewhat united but weak. Some of the CIALs feel weak as a group because there is little commitment in the execution of the activities that are programmed; and the recording of the information and the responsibility fall on a few people, not on the whole group.

Lack of union between the CIAL and the community. In the majority of the cases, there is little communication and collaboration between the CIAL and the community. As a result of this, there is little collaboration of the community in the group's activities. This occurs because there are no programmed feedback meetings to the community about the results of the work done by the CIAL.

Recording of the information. In the CIALs visited the people in charge of recording the information have not developed the skill sufficiently nor the habit of keeping records, which requires their being accompanied very closely by the supporting entities to ensure the recording of the information. As a result, there is little information recorded by the groups. In some of the cases the groups record the information in notebooks or their field books, where they mix data from the PME work and the CIAL research, in addition to information on work that they are carrying out with other organizations that work in the community, which makes the organization and the analysis of said information all the more difficult.

PME perceived as extra work for the CIAL. One of the reasons why this happens is that the establishing of the PME processes was done after the CIALs were started. Thus the members of the group consider it as something additional to the work they have been doing all along.

The role of the people responsible for the PME. Although some people were selected to be in charge of filling out the formats and motivating compliance with the activities proposed in the PME system, at the time of carrying out the activities, the people who were supposedly responsible and their specific duties in the PME process were not clear, which meant that the programmed activities were not done and the key information that this CIAL is generating was not recorded.

Perception of the benefits of a PME system. The people of the CIAL do not perceive any immediate benefits that can be obtained from carrying out the activities and

recording the indicators that measure the change towards achieving their objectives. This makes it necessary to backstop the process very closely until the people of the CIAL adopt the system, put it to work and take advantage of its benefits.

Accompanying the process. Given that the team of facilitators establishing the PME process in the CIALs was very small, the latter were left alone for extended periods of time. The people in these groups expressed their need for more contact with the technicians (CIAT-CORFOCIAL) to explain some aspects of the activities to be done and the recording of the information that was not sufficiently clear to them. Moreover, going back to topics that had been developed previously left them out of context, and it was necessary to repeat the process of conceptualization, the formulation of the objectives, etc., in order to be able to bring the group up to date on the topics being dealt with, which meant that the work was delayed considerably.

Continuity in the PME workshops. In some of the groups the people that attended a meeting for establishing PME did not attend the following one and sent an alternate or simply did not attend. This meant that the topic dealt with previously had to be explained again in order to place it in context for the new people that had just entered the process and this required much more time than had been programmed.

Situation of social unrest. Some CIAL groups are located in zones where there was social unrest for a time and so it was not possible to achieve the desired continuity, and for that reason, the process of establishing the PME system took longer; e.g., the CIAL El Placer in El Tambo, where it has not been possible for the team to go in order to establish the process.

Institutional paternalism. In the zones where the CIALs are working, there are other governmental and nongovernmental institutions. In some cases there have been groups that will work only for donations or where they manage a budget to start their production projects and not in processes such as this, which are based on training people from the grassroots group to achieve sustainability and enhance their capacities.

Factors external to the process. There are certain times of the year, such as the onset of the rains, when the farmers hire a lot of labor or they travel to other villages and even provinces in search of the "bonanza" of seasonal work as, for example, the harvesting of coffee, and so they dedicate less time to the activities programmed by the CIAL.

No mechanism for obtaining qualitative indicators of effects and impacts. When the PME systems were established, only indicators of the results of the activities programmed by the CIAL in the short term in relation to the proposed objective were taken into account; therefore there were no indicators of intermediate or long term results, which in addition to measuring the results, also measure the effects and the impacts of the process undertaken by the CIAL in the community. Besides, there were no mechanisms for identifying indicators that were qualitative in nature. This made the later analysis difficult when it came to identifying the effects of the PME process undertaken by the CIAL in the intermediate term and the impacts in the long term.

Actions undertaken to solve problems presented in establishing the PME systems in Cauca

Formation of a team of PME facilitators. Given that at the onset of the process of establishing PME in the CIALs there were problems because the training team was very small and could not handle the number of CIALs where these systems were being set up, it was decided to train a team of facilitators to support this process. Alfonso Truque and Bolívar Muñoz, who are the farmer-technician and the administrator of CORFOCIAL, respectively, and 6 CIAL Guides to provide continuity to the meetings and later accompany and follow up the process formed the team. It is important to note that this group of PME facilitators was trained in both the theoretical part of the workshops with

the aid of exercises and tools, as well as in the practical aspects of the CIALs as a direct support to the Facilitator of the IPRA Project at CIAT. This group has the responsibility of establishing the PME systems in the CIALs that are in their charge and those that are near their zone of influence. An agreement was reached with CORFOCIAL, whereby the Guides would work in establishing the PME for 2 days per month and that they would be paid the equivalent of one day of the legal wage established for each day worked and supported by a report.

Formats designed so Guides could record general results of the PME in the CIALs.

In order to be able to obtain uniform information, to verify the work done by the Guides, and to learn the progress made in establishing PME in the CIALs, some formats were designed to gather the general information on this process, which covers all its aspects such as the exploration of knowledge on PME, the formulation of the CIAL objectives, activities programmed, indicators for measuring the progress of the process, formats designed by the CIAL and people in charge of carrying out PME in the CIAL (Annex 3).

Execution of a common PME agenda between CIAT and CORFOCIAL. In order to synchronize the work of establishing the PME systems in the CIALs, work schedules were prepared jointly, coordinating the remaining activities for establishing PME in the CIALs where it was incomplete and to begin establishing it in the CIALs that haven't begun the process yet.

Prioritization of CIALs where PME will be established in 2003. In the prioritization of the CIALs where PME will be set up, it was necessary to agree upon the CORFOCIAL personnel such as the Guides and Technicians. It was also necessary to take into account factors such as the situation of security in the zones where the CIALs are located, the ease of traveling there (CORFOCIAL and CIAT teams) and the willingness of the CIAL group to participate. Given the level of the commitments, it was decided to establish the PME systems in 22 of the 39 CIALs of CORFOCIAL.

Accompanying the PME process in Cauca. The CIAT IPRA Project is also accompanying the CORFOCIAL technicians, Guides and CIALs in order to strengthen their capacities and overcome inconveniences related to said systems.

Modified methodology for establishing PME in the CIALs. Given the fact that in the initial stages of establishing PME systems in the CIAL groups required up to five 4-hour meetings per group, it was necessary to adapt the strategy, taking into consideration farmer's limited time. The adapted strategy of a "cascade" of questions that begin with the question, **"What are the objectives that you wish to reach as a group?"** From there, the conceptualization of what a PME system is and what it means with respect to the accomplishment of the proposed objectives are derived. Afterwards, the activities to achieve each objective are formulated, as well as what the community and the group expect to accomplish with each of these activities. To strengthen the conceptualization, graphs or drawings that reflected scenes from the farmers' daily lives are used. Figure 2 illustrates this cycle diagrammatically.

A significant accomplishment with this methodology is that the entire process can be a completed 2 to 3 meeting per group. This means less time is required to establish it.

Strategies for identifying outcome and impact indicators. The adjusted methodology also allows for the identification of indicators for monitoring the process (participation in group activities), outcomes (short-term effects) and impacts (long-

term effects). Additionally, the methodology also helps identify both qualitative and quantitative indicators. Table 1 summarizes the information obtained in a CIAL when using this methodology. Afterwards, the formats or forms for recording the information are designed so that those responsible for the PME of the group can do this task easily and rapidly.

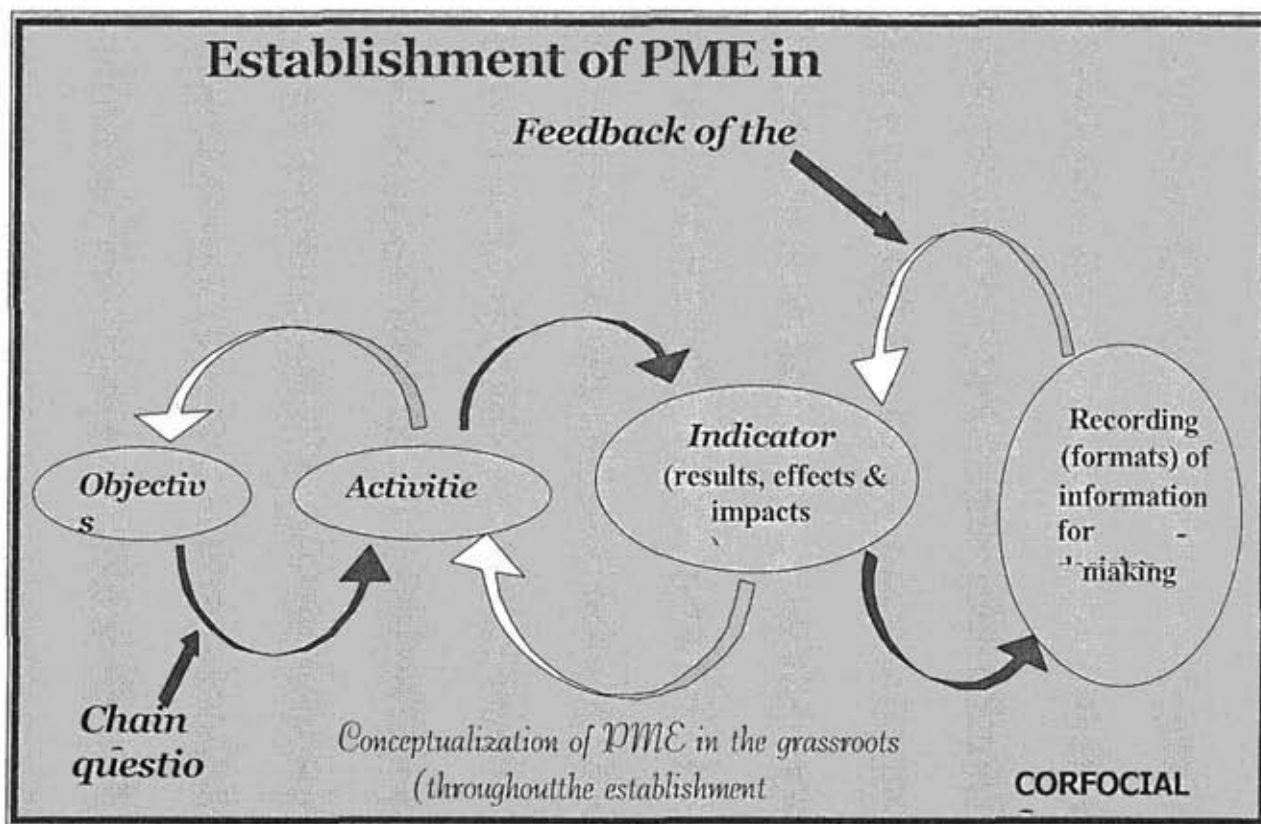


Figure 2. Revised methodology for establishing PME in grassroots groups.

Table 1. Information obtained with the modified methodology for establishing PME in the CIAL La Esmeralda 2.

General Objective	Specific Objectives	Activities	Indicators
Strengthen the CIAL group to create a business for processing maize to improve the income and the quality of life in the community	Strengthen the group	Hold meetings with community to show benefits of working with CIAL	Level of community knowledge on CIAL's work (qualitative indicator)
		Show CIAL trials to the community	No. of people who know the group and work with them (more hectares planted to maize) (quantitative indicator)
	Identify economic resources	Raffles, sale of food, festivals Voluntary contributions of the members	Bookkeeping records of the CIAL entries, expenditures and balance (quantitative indicator)
	Acquire machinery for processing maize	Present projects to entities to get the machinery	Projects formulated by the CIAL
			Projects implemented by the CIAL to purchase machinery
	Sell the maize	Training in basic principles of marketing Identify clients Promote the product	Level of knowledge on marketing
			Level of participation in the process of marketing products
			No. of people in group working on marketing
	Generate employment		No. of people employed (indicator of effect)
			No. of person-days paid (indicator of effect)
	Improve the quality of life	Organize a committee that works for health Implement home gardens	<u>Health</u> (impact) No. of subsidies No. of home gardens established
			<u>Nutrition</u> Improvement in diet
			<u>Housing</u> (impact) No. of houses in process of improvement

Lessons learned

PME can be established in groups that have different “stages of maturity”; that is, it does not matter whether they are in the process of formation, if they have been functioning for some time, or whether it is a group that wants to reformulate its work or even in those cases where the group had fallen inactive if they are motivated to work towards their objectives.

PME systems stimulate the grassroots groups’ capacity for analysis, identifying problems, proposing and implementing possible solutions.

The group itself decides which aspects of their work they are going to monitor and evaluate, as well as with what frequency they are going to do it.

Groups that were discouraged have been reactivated as can be seen in the projection of their work.

Once the PME systems are established, the CIALs should be accompanied in the process as in the majority of cases, there are questions on the part of the people who are responsible for implementing it in relation to how the system functions. Some of these questions are:

What is the first thing that we have to do in order to reach the objective that we set?

How should we fill out the formats that were designed to record the information generated by the group?

Who is the person responsible for gathering and recording the information on these formats?

How often should we fill out the formats?

When should the information be presented to the CIAL and the community?

Regular backstopping is one of the factors that makes the difference between success or failure of PME, given that it can strengthen the grassroots groups in those aspects where they feel weak and it also serves to stimulate the execution of the activities oriented toward fulfilling the objectives.

In the future it is important that at the moment of creating the structure of the CIAL, PME be included from the onset so that it be considered as a routine part of the CIAL’s work and not viewed as an additional work load.

It can be affirmed that using probing questions in a sort of chain, where all the links are the CIAL’s work in function of the time and of the expected results, it is possible to obtain indicators that can measure the effects and the impacts of the process undertaken by the grassroots group.

Projection of PME work in Cauca

Given the experience accumulated over two years of work in establishing PME systems and as a response to the needs generated by the grassroots groups, the following activities are contemplated:

Selection of CIAL models for PME. A number of CIALs are going to be selected as models in the implementation of PME in Cauca and Latin America, where much more emphasis will be placed on the accompaniment and strengthening of the PME system so that they can serve as an example and model for the other CIALs that are not so far along in the process. They will also attend tours and be motivators for PME in the CIAL groups and other community groups that have a direct or indirect relationship with them.

Hold PME meetings among the CIALs of CORFOCIAL that have already established and implemented the PME system to share experiences and strengthen the process. Moreover, an international PME meeting among all the CIALs that have implemented PME systems in Colombia, Honduras, Bolivia, Ecuador and Nicaragua is being organized. Contacts are being made with entities such as the Foundation for Participatory Research with Farmers in Honduras – FIPAH (formerly IPCA) and the PROINPA Foundation in Bolivia.

Workshops for recording Information: Due to the problems encountered in recording the information, some workshops will be held in the short term in order to reinforce the recording of information by the CIALs and also to strengthen the Guides in this topic so that they can support their groups better.

PME in the CIAL methodology: The idea is to prepare a methodology where from the moment that the CIAL group is formed, the PME system is implemented in order to see the progress in their work and the fulfillment of their objectives.

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ANNEX 1. Results of some CIALs with PEM.

CIAL	General Objective	Specific Objectives	Activities	Indicators
La Unión 1	Conduct research on maize and manage projects to establish production that helps bring about food security in the zone	Integrate the CIAL with the community	Visits of the community to the CIAL trials Feedback of the CIAL to the community	No. of people that have visited the CIAL trials No. of people that have received feedback from the CIAL No. of people that have planted the varieties that the CIAL has studied
		Do research on common bean varieties	Planting trials	No. of trials established and stage of research No. of varieties adapted to the zone
		Manage projects	Small businesses in project management Write projects	No. of people trained in project management No. of projects written by the community
La Unión 2	Conduct research on common beans and manage projects to establish production that helps bring about food security in the zone	Integrate the CIAL with the community	Visits of the community to the CIAL trials Feedback of the CIAL to the community	No. of people that have visited the CIAL trials No. of people that have received feedback from the CIAL No. of people that have planted the varieties that the CIAL has studied
		Do research on common bean varieties	Planting trials	No. of trials established and stage of research No. of varieties adapted to the zone
		Manage projects	Small businesses in project management Write projects	No. of people trained in project management No. of projects written by the community
San Isidro – Men	Get resources to strengthen the research (cassava for fresh market and starch) with adequate soil management and manage projects to form small businesses to improve the level of income in the community	Get economic resources	Organize a soccer championship with fair & dancing afterwards Hold festivals Hold raffles Hold bingos	No. of activities to get resources Fund statement of cash position
		Strengthen the group and CIAL research	Comply with steps of the research ladder (take the CIAL formats) (the whole project) Identify cassava varieties that are adapted and have good starch content Increase the no. of CIAL members Integrate CIAL's and community's objectives Invite the community to see the CIAL trials Present research results to the community	No. of cassava varieties identified with high production and starch quality No. of people that are participating in the CIAL tasks No. of people that have visited the CIAL trials No. of visits of the CIAL promoter to the community No. of feedback meetings to the community
		Manage the soils adequately (due to deterioration produced by the cassava crop)	Plant live barriers (short-term research) Establish dead barriers (short-term research) Green manure (<i>Titonia diversifolia</i>) (short-term research) Crop rotation (short-term research) Strips without plowing (short-term research) Meeting of cassava producers (lessors) with the landowners (lessee) to arrange the conditions of the lease	
		Manage projects	The CIAL leads project management Small businesses formulate projects (short term because now there are good possibilities of getting resources with entities and politicians) Formulate at least one production project (medium term)	No. of projects prepared by the CIAL No. of CIAL projects passed by the entities.
		Formation of small businesses	Formation of small businesses (Guides who will multiply in the communities) (long term)	

CIAL	General Objective	Specific Objectives	Activities	Indicators
Carpintero	Improve the level of income by establishing maize crops, applying PR in the stages of production, transformation and marketing in the village of Carpintero	Do research on maize varieties with good production and adaptation	Research on maize production (quality, type of planting) Project management Prepare a schedule of activities	No. of maize varieties selected with good production and adaptation to the zone No. of research activities developed
		Planting and maintenance of crops	Plant, apply manure, planting time, fertilization, control of weeds and diseases Prepare a schedule of activities	
		Project management	Small businesses in project management Formulate production projects Present projects to entities	No. of people trained in project management No. of projects prepared and approved
		Get resources	Carry out activities (bingos, festivals, savings) Small accounting businesses Keep accounting records	No. of activities held to get resources Current inventory of CIAL resources
		Formation of businesses	Small businesses in marketing Marketing study Enter into trade agreements with the consumers (markets, granaries, farm supply stores, etc) Get adequate machinery Get installations for the machinery Promote the product Small businesses manage machinery (thrasher) Arrange means of transporting the product Conduct research on improving transformation	
El Pinar - Men	Conduct research on common beans and maize to increase the family income, improve the quality of their diets and create a small business (transformation and seed production)	Conduct research on common beans and maize	Conduct ongoing monitoring of compliance of the steps of the CIAL research ladder Make schedule of activities Fill out formats to verify the compliance of the activities	No. formats filled out for each step of the research ladder No. treatments selected No. lb harvested per treatment No. research activities carried out by the CIAL
		Get resources to strengthen the CIAL	Visit entities Make requests to different entities or submit production projects to financial entities and those with a mandate to support the farmers such as the Agrarian Bank, Coffee Growers' Committee, the UMATA- Piendamó, CRC (irrigation districts) (visit entities) Request authorization of the Communal Action Board to hold community activities (bingo, championship of typical game (<i>sapo</i>) similar to horseshoes, festival, bazaars)	No. projects formulated, presented and approved No. visit made to the entities by the CIAL No. community activities held to get economic resources Profits generated by the activities to get resources (balance)
		Create small business (transformation and seed production)	Increase the production of maize and common beans Select seed at end of production cycles to maintain competitiveness on the market (to prevent crosses during the cycles) Train in formation of small businesses Train in transformation of maize Train in seed production	No. lb produced of the products studied (maize, common beans) No. lb of maize and common beans selected for seed No. training events on formation of small businesses (certificates, records)

CIAL	General Objective	Specific Objectives	Activities	Indicators
Santa Maria	Strengthen the group, continuing with the research, guaranteeing the seed production, and letting the community know about their activities	Strengthen the group itself	Train in the crops that are being studied and on how to store seed Write up group regulations/norms Made a schedule of activities Hold group meetings more frequently (attendance)	No. training events received (on the crops) No. people trained (in the crops) No. activities held of those programmed No. participants in the group's activities No. applications of the rules (stimuli and sanctions) No. applications of the training (for good of the community)
		Hold different trials (research)	Follow the steps of the CIAL research ladder	No. trials conducted in the different research stages that the CIAL has
		Guarantee the seed production	Get own lot (loaned, leased or own) "because the group does not have own land" Plant quality seed in good amounts and monitor crops Harvest on time	No. kg seed planted by the CIAL No. of kg of seed obtained by the CIAL No. lots obtained for the research (legalized with contract)
		Let the community know about their activities	Offer the CIAL's services to the community Present results of the work done to the community (in the meetings of other groups organized in the community Communal Action Board)	No. reports presented to the community No. training events held for the community No. people growing the products researched by the CIAL No. reports presented to the community
		Get economic resources to accomplish the general objective	Get economic funds (raffles, present projects to entities)	No. projects approved Amount of funds obtained by the group (to buy own lot) Amount of assets acquired Public deed in CIAL's name
El Uvo	Improve the organization of the group to continue with the research on common bean and maize varieties, the storage of seed and acquire their own lot to improve their level of life	Improve the organization	Elect CIAL board Prepare a schedule of activities Establish commitments and responsibilities of the people that belong to the CIAL	Board formed and active No. people or partners that participate in the CIAL activities No. of tasks or activities done by the CIAL
		Do research (common beans, maize)	Do all the steps of the CIAL research ladder Hold a planning meeting to begin with the research on maize	Formats of research trials filled out Planning meeting (format filled out)
		Get economic resources	Hold bingos and raffles Train in how to present projects (INCORA and other entities) Present projects to entities	Amount of funds collected (balance) No. people trained in how to present project No. projects presented to entities No. projects passed
		Acquire own lot for research and production	Get a lot and pay lease with the production	Amount of funds collected Contract for leasing the lot Amount of seed sown
El Jardín	Increase the production of sugarcane for panela and maize in order to improve food security and form a small business to help improve the level of life in the community	CIAL formed and functioning	Increase the no. people in the CIAL and collaborators	No. people participating in the CIAL's activities No. activities carried out to get resources
		Improve the organization of the CIAL	Program visits of the community to the CIAL trials Hold field days for the CIAL to provide feedback to the community	No. people that visit the CIAL trials No. people that attended the field days No. people from the community that have planted the varieties recommended by the CIAL
		Do research on sugarcane and maize varieties	Identify sugarcane varieties that have good panela production and that are adapted to the zone, as well as good maize varieties Go through all the steps of the CIAL research ladder	No. varieties of cane for panela and maize identified by the CIAL that have good production and are adapted to the zone
		Get economic resources	Hold raffles, festivals and savings	Keep an accounting book (entries, debits and balance)

steps that perhaps had not been contemplated during the Colombian experience, or if they were, were not documented.

The procedure based on the available documents and materials is outlined in Figure 1. The scheme is divided into *contextual elements* – elements that we have considered as our own or unique to the Colombian context in which the procedure was developed; and *suggested steps*, essential in the implementation that should be included in the replication of the procedure, regardless of the context.

Contextual elements

These elements change according to the context in which a participatory procedure is implemented and influence the mode of implementation of the suggested steps and the end results. In the Colombian experience the most important contextual elements were the actors and the crop.

The actors

In the Colombian experience there were several different actors: agricultural research institutions (national and international), universities, cooperatives, NGOs, small processing industries of the cassava roots and small farmers. In addition, there was GRUYA (Cassava Group and Associated), a group of professionals from different institutions and specializations with experience in the cassava crop, who met periodically to share experiences, plan activities and provide mutual support on different topics related to the crop. The existence of GRUYA greatly facilitated the work and ensured that no important aspects of the crop were left out in the implementation of the project. It also facilitated the interaction with the producers and the geographic coverage that was obtained with the trials (interinstitutional agreements is one of the topics that is analyzed later on).

In addition to the relationships among the entities, the identity of the main actors, their mandates, principles, objectives and modes of work are important contextual elements. It should be mentioned that in the Colombian context, CIAT, one of the entities initiating the project, had the objective of developing a procedure for PPB and creating the capacity within their member entities for replicating the procedure. Therefore, there were activities and strategies such as the continuous training of professionals, the Interinstitutional linkages, the hiring of a person specifically to prepare and document the procedure, the availability of a budget, the centralization of the information, and the strategy of beginning the work within the conventional scheme and with materials in advanced stages of breeding that were highly significant in the Colombian experience, but not necessarily in other countries and with other crops.

The identity of the producers is also an important contextual element. Although the producers can be seen as an intrinsic element of the procedure as the suggested step "selection of the farmers" implies, it should be noted that their identity and their socioeconomic situation vary according to the context. As explained later, most of the farmers that live in the region where the project was established are small farmers (average of 0.5-1 ha land), male, with a great deal of experience in the production of cassava, which is grown mostly for on-farm consumption and the fresh root market. Although there are other subregions and other socioeconomic profiles within the region, these were the target of the project, given the mandate and the objectives of the executing entities.

The crop

Much can be deduced from the name of the procedure that we are analyzing. The name Participatory Research for Cassava Breeding (PCB) suggests that the procedure was developed specifically for the cassava crop, which it was for circumstantial reasons. The breeding strategy, the type of selection, the structure of the replications, the experimental design, the time, the space and the resources required in the procedure are specific to the cassava crop and will naturally vary with other crops. The sequence of steps suggested within the procedure have been and can easily be applied to other crops.

The crop is also an important element in the Colombian context because cassava is a subsistence crop, common and traditional in the project areas. This facilitated the establishment of the participatory procedure as the farmers of the Atlantic Coast have a great deal of experience and knowledge on this crop. Working with crops where the farmers have no experience (e.g., in grasses for pastures or varieties used for ground coverage in some cases) and where the benefits of the technology cannot be seen qualitatively in the short term (e.g., the conservation of soils or protein digestibility and content in forages) can present different, more difficult challenges for the researcher.

Steps suggested in the PCB procedure

The steps suggested in the PCB procedure are, sequentially, as follows:

Establishment of objectives. In PCB the objectives are established by the participating entities before beginning the participatory procedure.

Selection of farmers and sites (and the establishment of a network of trials) is done through participatory techniques that orient the selection of producers based on several selection criteria established by the entities.

The **participatory diagnosis** defines, in a first instance, the problems or constraints and objectives of the participants.

The **selection of materials** to be evaluated (technological supply) is based initially on the description of the "ideal" variety; and after the first cycle, on the producers' criteria.

Open-ended evaluations (subjective information) and **agronomic evaluations** (quantitative information) are used to gather data for analysis.

The **criteria** are determined, and the **glossary of terms** is prepared, using evaluation formats and subjective analysis of the information.

The **field books** are formats of tables of frequencies to determine the relative importance of the criteria.

The **information is analyzed** statistically, using regression analysis for nonparametric data.

The **pre-release** phase is defined by the research entities.

The **varieties are released** according to the regulations of each research entity.

Discussion

Four key areas within participatory research (PR) are analyzed: the selection of participants, the establishment of objectives, the analysis of information and interinstitutional agreements. The following aspects are looked at: what the respective documentation existing on PCB suggests, how it was dealt with during the Colombian experience, what aspects were not considered, and finally, how can the procedure be refined in light of the experiences and the lessons learned in PPB at the international level in the last 20 years.

Selection of farmers and communities

The selection of farmers in the Colombian communities was coordinated by research institutions through staff that were familiar with the farmers' production systems. The staff selected farmer experts from communities in edaphoclimatic zones similar to those of the experiment station and where cassava is a priority crop (Iglesias & Hernández, 1994).

The participatory procedure recommended selecting farmers in each location based on the following criteria:

- Recognition within their community as experts in the cassava crop
- Interest in the trials
- Availability of the necessary area
- Location with easy access to the markets in the region
- Communication skills (capacity and willingness to transmit their thoughts)
- Production systems typical of small cassava producers

It was recommended that in each evaluation cycle, the farmers responsible for the trials be changed, replacing them by others selected using the same parameters as before, involving neighbors who showed interest and had possibilities of establishing participatory trials on their farms in later cycles. The idea was to extend the coverage of experimental environments in order to ensure broad adaptation of the clones and involve members from the gamut of end-user groups involved in cassava production in the region, thereby ensuring acceptance of the clones within all the groups, not just one or two. Despite this, the group of end-users in which the selection of participants was emphasized was the group of the small farmers since this is the group to which the majority of the farmers of the region belong and also the ones that figure within the mandate of the entities that implemented the project.

In the Colombian experience more than 500 producers (all men) participated in 90 trials on 15-20 farms per cycle. Among the participants there were buyers of cassava for the drying plants (cassava chips), producers of starch and members of cooperatives. These groups were invited to the evaluations at the end of the cycle the harvest. But the largest percentage (70-80%) was a critical mass of small producers dedicated to growing cassava as subsistence crop for fresh root consumption. They participated throughout the crop cycle so the resulting information of the different groups of end-users in the evaluations was separated to prevent confounding the results.

Despite having specific objectives regarding who should participate in the process, the project on the Atlantic Coast did not systematize a strategy for selecting the participants. This was simply left to those who were interested (self-selection). Therefore it was not possible to pre-establish a balance among the different groups of end-users represented in the data collection and consequently in the decision of which clones would continue in the selection process. This did not bias the decisions much as it was discovered that the different groups had comparable objectives and similar preferences in relation to desirable varieties even though they had specific criteria in each phase of the production. Thus the same varieties were selected by the different groups, but for different uses (fresh consumption and starch production). Nevertheless in other contexts, where the differences in varieties and preferences among end-users can be more notable, the lack of a strategy for selecting the participants and ensuring representation and a balance among different end-users could be an important constraint. In such cases the separation of the information according to the groups of end-users would be more important.

Reflecting upon the selection process of farmers on the Atlantic Coast, it is important to highlight the importance of also looking for the nonobvious end-users who may not be

readily seen or who do not self-select themselves. For example, in this case the women as a group of distinct users were not considered as they have a minimum participation in getting stakes, planning and managing the crop until its sale in the market. Nevertheless, in a later work that had the specific objective of working with women, it was discovered that in this region, the women play a central role in selecting roots for making and selling *bollos*⁸ (IPRA-CIAT, 2000). This market is managed exclusively by women, using the income to buy basic needs of the family such as clothes for the children, school utensils, medicine, and at times to pay for transportation. As the project did not have the specific objective to seek the “hidden” end-users, the researchers did not learn of this activity related to their project with cassava varieties. Sometimes the hidden end-users can be women, but other times it can be a group of farmers with a socioeconomic level lower than the majority or a group that supplies a market niche or one specific to the region. To prevent the omission of these end-users, the PCB could incorporate within its diagnosis step, a substep for identifying end-users.

In the experience of the Atlantic Coast the entities elected to work with individual farmers that had conditions and cultural practices representative of the zone. The recommendation of the PCB procedure is to work with no more than ten people at a time. This facilitates the data gathering and analysis. Nevertheless, other PPB projects have tried working with more farmers and previously established groups. In Northeast Brazil, for example, the researchers tried to work with entire communities and with cooperatives. They concluded, however, that it was too difficult to organize evaluations and handle the data coming from so many people, except in the case of the cooperatives, which greatly facilitated the work given the fact that they were already organized and used to working together (Fukuda & Saad, 2001).

The work with farmers' groups has taken different forms. For example, there is a lot of experience in Latin America with CIALs, community-based research services that conduct research in *representation* of their communities. There are also projects where the researchers have facilitated the formation of farmer groups such as the groups evaluating clones of potatoes in Ecuador or Farmer Field Schools in Bolivia. These experiences show that important accomplishments such as mutual support and motivation among farmers, the diffusion of technologies among farmers' groups, the distribution of risks and benefits, and the possibility of continuity of the work after the intervention by the research entities can be obtained by working with groups. Nevertheless, it has been seen that the formation of groups specifically for a PPB project means dedicating much more time and in some cases having personnel a background in group dynamics. This also means that the project should be situated within a broader context of rural development, not for a specific activity such as breeding.

In selecting farmers for a PPB project, it is important to consider the distribution of benefits. Generally the research entities have as their mandate to facilitate the rural development of the whole community or entire regions, not just a few selected farmers. For this reason it is necessary to select farmers who not only comply with the representative conditions, but who are also willing to share what they learn and discover in the research process. Thus the Atlantic Coast project selected farmers that not only had representative conditions and practices and good communications skills, but who also had farms that were well located and easily accessible and could thus serve as “show windows” for neighboring producers who walked by there and could see the new varieties planted. This stimulated the spontaneous or informal diffusion of the promising varieties and ensured, to a certain extent, “publicity” for the experimental clones.

⁸ These patties are prepared with cassava flour and cheese. They are cooked wrapped in maize husks and sold in the urban zones of the region.

The combined experiences with PPB worldwide show that the types of farmers, the number who participate and whether they participate individually or in groups depend on the project objectives and what is needed to accomplish them. For example, if a project has the objective to ensure that the benefits of the collaboration are distributed widely, it should look for participants that are recognized leaders in their communities. If the objective is to incorporate the farmers' knowledge in the varietal selection process, it should involve the local experts (PRGA, 2000). Sometimes the same people fill more than one of these profiles, but other times the local expert is not recognized as a leader in his/her community, or the community leader does not have sufficient technical knowledge. Similarly, a PPB project can often have more than one objective, which means that they must be prioritized and the participants selected accordingly.

With respect to involving women as participants, the combined PPB experience over the last years has shown that the quality of the research can generally be improved significantly as the women are usually in charge of domesticating wild species and of selecting and maintaining seeds due to their knowledge of the germplasm. Moreover, women's preferences are often different from those of the men even though they do not always participate directly in the farming activities as was the case on the Atlantic Coast.

Establishment of objectives

The objectives of the process implemented on the Atlantic Coast were established by the research entities after an initial exploration of the zone. Fully aware that there is great genetic diversity on the farms of small cassava farmers and that this is not static but changes over time, the researchers agreed to the fact that farmers have a selection process based on criteria that permits them to test new materials, observe them and eventually incorporate or reject them. They were interested in learning more about their criteria, with the idea of developing a formal procedure that would make it possible to implement this systematically in the development of technologies. This was the main objective of the project. Thus, PCB does not recommend the establishment of objectives as a suggested step within the procedure; rather it assumes that it is an activity that occurs before the farmers begin to participate.

The objectives established for a research process affect the determination of the steps and the activities to be implemented. When the objectives are established prior to the participation of the end-users, their priorities cannot be included in the initial conception and planning of the project. In the case of the Atlantic Coast, the participation of the farmers in the diagnostic phase made it possible to work with producers who identified cassava varieties as the main problem in their production areas. Nevertheless, the final objectives of the breeding itself were not discussed. Were the producers seeking varieties with specific or broad adaptation? Were they looking for one variety or several? Were they looking for varieties for on-farm consumption or multiple uses? Were they seeking to improve their cassava yields, or were they also interested in working with other crops at the same time? Were they seeking to conserve and/or improve their native varieties or did they want improved ones? The participants could not consider these and other options that breeding offers because the objectives had already been established.

In addition to the options with respect to cassava breeding, the participants could also have contributed their preferences with respect to their own participation. The combined experience of PPB worldwide shows that the stages of the research (or breeding) in which the farmers and other end-users participate varies. As mentioned, participation in the Atlantic Coast project began in the diagnostic

stage. In other PPB cases, it began in the phase of setting objectives; while in others, participation is only at planting and harvesting. The PR literature and experience also indicate that there are different "degrees" of participation, ranging from a consultative to a collegial style. The documentation on the PCB procedure concludes that the preferable style of participation is the consultative one and that the initial stage recommended is the diagnosis; nevertheless, this is one way among many to implement PR.

We would suggest that the objectives of a PPB process could be established in several ways, depending on who is involved, the entities flexibility and the resources available. There are cases of PPB in which the objectives of the process were established jointly among researchers, farmers and other end-users (e.g., the CIALs working with crops such as potatoes in Ecuador). In such cases the researchers need to explain to the end-users the range of options available and what they can expect from breeding (and what not). It is also important that the researchers and their entities have the flexibility and the capacity to negotiate and modify their own objectives and assume some of the objectives of the end-users if these are different. There should also be some elasticity in the frameworks of formal research and therefore in the support of the higher levels of decision-making such as the directors of the institutions.

In the case of the Atlantic Coast project, it should be noted that given the objectives of the project, knowledge of the farmers' selection criteria was very important. To the extent that learning about their criteria has been an objective of the PPB, it has also been reported as a product of this approach, which in itself does not mean much. To have some meaning, the knowledge of farmers' selection criteria has to be incorporated in the breeding process, in the selection of parental for crosses and experimental clones. Besides, farmers' criteria are not static as appears when suggesting an objective is to establish knowledge of them. Although some criteria persist, others change from cycle to cycle and from one group of end-users to another. Numerous PPB projects have been frustrated by this fact.

Another of the principal objectives of the Atlantic Coast project was to select clones for pre-release and others for release. Although this is the objective of most PPB programs, experiences around the world show that the application of the participatory approach can have a broader range of objectives than the release of improved varieties for certain zones. Among the objectives that have been accomplished with this approach in crop breeding, the following can be mentioned: the conservation and enrichment of biodiversity, the organization of farmer groups, changes in policies for releasing varieties, multiplication of seeds, access to genetic materials, and the facilitation of learning by the farmers. When planning a PPB process, the researchers and other end-user groups could consider this approach as a very powerful tool for accomplishing multiple objectives (PRGA, 2000).

The results of the Atlantic Coast project are well known. It conformed to a participatory process that has been adopted and adapted in several Latin American countries. The farmers' selection criteria are known. Genetic diversity was expanded on their farms. In these terms, it can be said that the project was very successful. Nevertheless in the planning of the PPB experience on the Atlantic Coast, several important elements were not considered: a phase of mass multiplication of seed for the rapid diffusion of the more accepted clones, following up the process to fine tune the methodology, and study of the impact. After analyzing several projects that implemented the PCB procedure, it was discovered that these are steps ought to be included as they contribute significantly to the enrichment and impact of the work.

Quality of the information and its use

The quality of the data gathered and its use is another key issue in PR. The challenge is to obtain, combine and analyze both qualitative and quantitative data for making decisions in the research process. This is a challenge that has not yet been totally resolved in PR.

The Atlantic Coast project tested several statistical tools for facing the challenge of the quality of the information and its use. Principal components analysis (PCA) stands out because it reduces the number of variables and analyzes both quantitative and qualitative variables. The application of cluster analysis makes it possible to group varieties, criteria and regions, providing a global vision of the preferences. Nevertheless the most useful tool was logistic regression, which was adapted for analyzing preference rankings and simulating the acceptance of technology by producers. Perhaps the most important contribution of the Atlantic Coast experience with respect to information and its use is the fact of having found a way to make a technical interpretation of the subjective opinions given by the participants in the evaluations. This made it possible to establish an information link between the production systems on the Coast and the experiment stations.

The PCB procedure recommends preference ranking to compare degrees of acceptance of the different varieties in order to classify them from the most to the least acceptable. This process is based on techniques of open-ended evaluation useful for the knowledge of qualitative points of view, explanations and ideas about the reasoning processes of the producers and how they take decisions.

A sequence of the steps for analyzing the information recommended by PCB is as follows:

- Development of flowcharts to guide each activity (Ashby, 1992)
- Construction of lists of terms, local agricultural glossaries classified by region for local, regional and scientific interpretation
- Identification of criteria, differentiating them from descriptive aspects
- Integration of the reasons, rankings and criteria identified, differentiating between antonyms and synonyms
- Development of formats for systematizing the information
- Development of field books (Hernandez, 1993)
- Analysis of the information using several tools

Some of the results related to information, obtained with this process in the Atlantic Coast project, were the combination of efficient tools to obtain information (tables of relative frequencies, differentiating between synonyms and antonyms; electronic datasheets for transcribing the information directly in the field; scales for grouping ranges; matrixes with transformations of scales for the joint analysis of qualitative and quantitative information, and a matrix for classifying the preference rankings), the glossary of terms, the criteria, the reasons, the rankings, the field books, the technology profiles and the alternatives tested in the analytical process.

A method that has been adapted recently by Sall et al. (2000) in Senegal is quantification based on a quasi-arbitrary ordinal weighting system of the producers' perception of specific characteristics of a given technology. Tobit regression analysis is used, including variables that represent:

- The farmers' perceptions on the relative importance of the different characteristics that a material can have

The presence and quality of those characteristics in the experimental material
The characteristics of the producers and their farms

This method, the same as the one recommended by the PCB procedure, explains and predicts the adoption of improved materials.

In the data analysis it is important to consider its source and the relative weight that is given to each participant or group in deriving conclusions from the preference rankings. This can be seen as a process of voting, where each participant has the right to vote for his/her preferred clones. If the majority of the group of participants represents an interest within the community that is not necessarily the interest of the entire community, then the recommendations based on the preference ranking analysis can be very biased. Thus it is important, as mentioned previously, to select the participants of a participatory process carefully; or if this is not possible, separate the information obtained from the different interest groups so that the results reflect the community's (ies') preferences more precisely.

Another key consideration with respect to the quality of the information and its use is the amount of data gathered. Many PPB projects gather more information than they can manage, process and use. It is important in the planning of a PPB project to determine what information can be used and what not. As mentioned previously, a tool that the PCB procedure has suggested is the field book, which permits the collection of both objective and subjective data (quantitative/qualitative) and also limits the amount of information that can be noted.

Many PPB projects produce lists of the farmers' selection criteria. What happens with these at the end of the project? Until when/where are they relevant for other projects in the same areas? An interesting case of information management is the cassava breeding project in Northeast Brazil, managed by EMBRAPA-CNPMP. Given the extensive collection of data and the magnitude of the project, the breeder Wania Fukuda had to create a database in order to store and manage the large volume of information. Although she felt that she might have collected too much information (pers. com., W. Fukuda), the database has been very useful in later phases of the project for suggesting experimental clones suitable for areas similar to the ones in the database.

Interinstitutional agreements

The project of the Atlantic Coast of Colombia was implemented in an interinstitutional framework where several entities of different types participated. As mentioned earlier, GRUYA, the group that in some ways personified these interinstitutional agreements, was important in technical, logistical and strategic aspects, given their composition, experience, coverage and participation in the decisions. In the first place, they made it possible to establish multidisciplinary discussion forums, where experiences were exchanged in each crop cycle, and the analysis and adjustment of the PPB component were facilitated. In addition the members of GRUYA had a network of trials in northern Colombia that brought together experiences of more than a thousand small cassava farmers for analysis in the forums. The interinstitutional agreements also helped the implementing entities to see different potential uses of cassava, incorporating elements/phases of the production change in the process that had not been contemplated at the onset of the project. Finally, the interinstitutional agreements provided the opportunity for the staff from the different entities to be exposed to the participatory approach. As a result of this experience, the PCB procedure recommends implementing interinstitutional projects, wherever possible.

The results of implementing the PPB project on the Atlantic Coast in an interinstitutional setting can be seen in the broad geographic coverage of the work involving a large number of producers and the participation of professionals of different disciplines. Another very important result of the interinstitutional agreements (in particular, the association between ICA and CIAT) was the institutionalization of the participatory approach in ICA, which has been using the PPB as a routine procedure in cassava breeding and for some other crops such as yams (*Dioscorea trifida* L.) in the Turipaná regional office in Córdoba, Montería (pers. com., A. Lopez).

Despite the interinstitutional agreements during the implementation of the project on the Atlantic Coast, there were no joint actions. The participating institutions acted as advisors and links with the different sites where the trials were implemented; but the responsibility of implementing the project, analyzing the data and documenting the process was mostly assumed by CIAT. In this way no feedback was received in the documentation of the process and the analysis of the information from the entities, which would no doubt have enriched the work. What was not considered in designing the institutional arrangement was the distribution of resources, responsibilities and recognition of the different member institutions. This is indispensable for the motivation, active participation and the empowerment of the institutions associated in an activity and therefore in the possibilities of continuing such an arrangement. The idea of using the interinstitutional agreements to reproduce the experience on a larger scale was not considered either. This would have required more commitment from the member institutions in a relation of belonging, where they could also expect resources.

Conclusions

With respect to the selection of farmers, it is recommended to have an explicit strategy based on the objectives of the collaboration, use specific criteria, involve members from a broad range of different groups of end-users (including women) both within the communities and in the production-marketing chain, seeking the hidden end-users and working with already established groups (if they exist in the area). The selection of farmers is a key element in the social impact of the work.

The establishment of the objectives in a PR process is perhaps the most important phase of a project as many of the decisions as to how to implement a procedure depend on the objectives. We suggest that, to the extent possible, the objectives be established together with the participants of the process and not beforehand. This can increase the relevance of the work for the end-users and therefore the impact. Besides, the participatory approach can be a vehicle for fulfilling a gamut of different objectives and does not have to be used just for developing new varieties. In the Atlantic Coast experience, it should be highlighted that two elements were not considered that have proven to be essential in later PPB projects:

- A phase of mass multiplication of seed of the clones accepted by farmers
- An impact study that includes considerations referring to the methodology per se and the process implemented.

Another key topic that is dealt with in this article is the quality and the use of the information gathered. In the Atlantic Coast experience, several alternatives useful for meeting the challenge of establishing a link between the analysis of quantitative and qualitative information were used. Logistic regression, adapted to the analysis of the preference rankings to simulate the acceptance of the experimental materials by the

farmers, is recommended. The use of a field book, similar to the one developed during the Atlantic Coast project is also recommended in order to limit the amount of information gathered to what can really be used and analyzed. The incorporation of the information or of the conclusions of the analysis in making decisions about the clones to be evaluated, recommended and released is an essential step for that process to be considered participatory.

The PCB procedure was developed within an interinstitutional framework that provided several advantages to the Atlantic Coast project. Among them we can mention being able to interact with a wide range of professionals from both research and extension as well as merchants, and the availability of wider ranges of geographic coverage for the trials. Another advantage is the exposition of several institutions to a new research approach. Given that the institutional framework is a contextual element, on which the projects and their implementers do not have much influence and it is not a suggested step in the procedure, perhaps it is out of place to make recommendations as to its form. Nevertheless, it should be mentioned that the interinstitutional collaboration can be highly advantageous for a PPB project and that in the event that there is such a collaboration, it is advisable that the members establish the objectives, the roles of each one in the collaboration and the corresponding responsibilities and obligations in a joint process.

The Colombian Atlantic Coast experience and the development of the PCB procedure were very successful. We need only to see the number of clones released and accepted among farmers and the adoption of the same procedure in several Latin American countries.

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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

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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 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

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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.

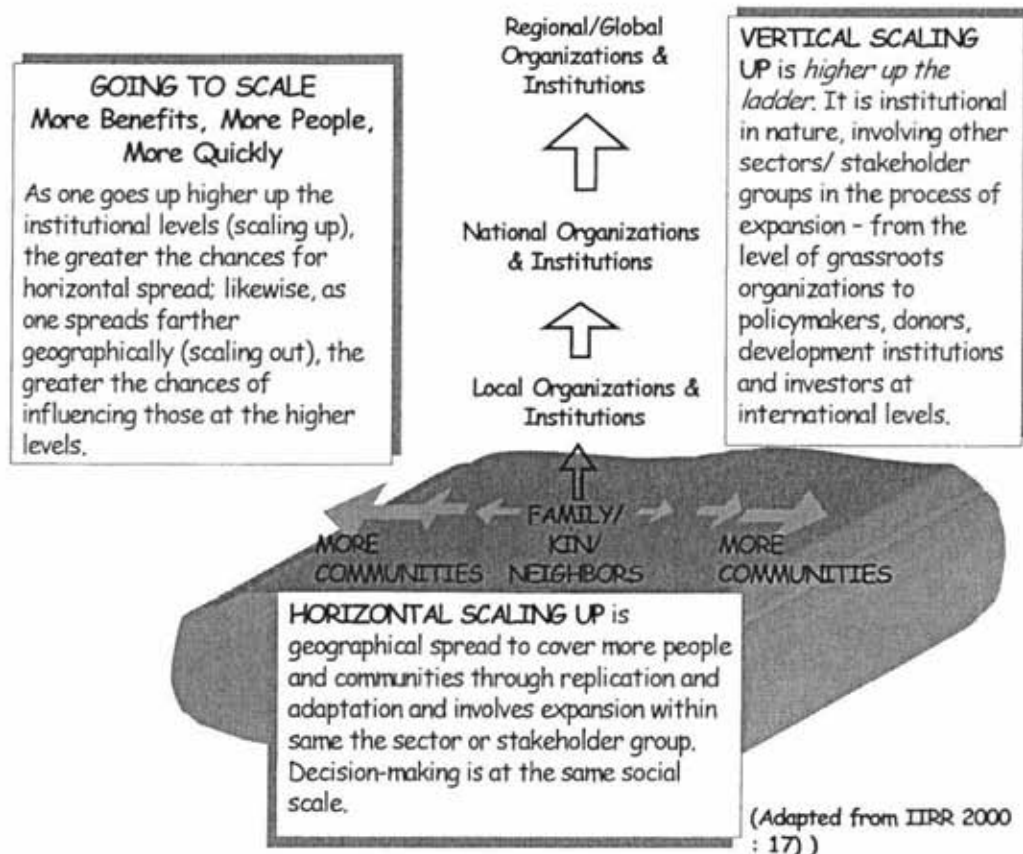


Figure 1. Scaling up as vertical and horizontal integration strategies.

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

Levels of Scaling Up	Objective of Scaling Up/Out	Partners, Institutions & Government ¹⁰	Specific Activities
Within the community	Adoption of technology within pilot communities and to others Scaling out of ERI framework by other groups not in initial groups	Africare Local government structure Agromanagement Farmers groups (initial agreement to train other groups)	Feedback from research group to community Active role of champion farmer in new farmer groups Community drama; e.g., on gender Community development facilitators to train other groups Involvement of local and district government structure in all aspects
Across communities	Communities applying ERI framework for better decision-making Adoption of technology within pilot communities and to others	Africare Local and district government structure Champion farmers	Exchange visits Awareness building and involvement of local government Identification of interested organizations and institutions or interested groups Community Development Facilitator to build capacity of new service providers Champion farmer has active role in new farmer groups
Within the district	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	Identification of different types of partners: agricultural research Os Ministry of Agriculture Farmer associations Local government Consortium of service providers District Extension Coordinator (DEC)	Development of scaling-up strategy and work plans with partners: Evaluation of institutionalization of ERI approach among existing partners Analysis of partnership processes and scale up lessons Identification of capacity-building and technical backstopping needs Find out about membership in CEED Share results and if there is demand, provide training of CEED members on ERI approach
National	Institutionalization of	Agricultural research NGOs	Institutionalization of approaches Participation in national agricultural shows for PR

¹⁰ Role of partners – new & old.

Levels of Scaling Up	Objective of Scaling Up/Out	Partners, Institutions & Government ¹⁰	Specific Activities
	methodology within existing partner institutions Policymakers within governments, NARS, universities, extension and NGOs are aware and supportive	Ministry of Agriculture Farmer associations Local government Consortium of service providers DEC universities APEP-USAID project (Chemonics) International NGOs CGIAR Centers: Future Harvest Uganda Key government policymakers Parliamentary group on food security and land degradation	Evaluation of institutionalization of ERI approach among existing partners Analysis of partnership processes and scale-up lessons Identification of capacity-building and technical backstopping needs Build capacity of community development facilitators and assistants in facilitating scaling-up strategies Engaging policymakers Field visits of key government policymakers (Minister, National Agricultural Advisory Services-NAADs, National Agricultural Research Organization) Attend meetings and seminars, make presentations Posters and papers at conferences Develop simple publications and distributed widely Curriculum development with University Developing training guides
Across countries	New partners applying the ERI framework in their on-going work with communities Policymakers within governments, NARS, universities, extension, and NGOs, aware and supportive	Partnerships with organizations working across countries and regions: Participatory Ecological Land Use Management-PELUM Networks: Eastern and Central Africa Bean Research	Participation in international meetings and conferences Posters and papers at conferences Agroecology highlights Curriculum development or testing of guide CIAT-Africa web-site Proposal writing Publishing peer review articles

Levels of Scaling Up	Objective of Scaling Up/Out	Partners, Institutions & Government ¹⁰	Specific Activities
		Network - CABREN AFNET International NGOs: Catholic Relief Services-CRS	

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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 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; Woolcock

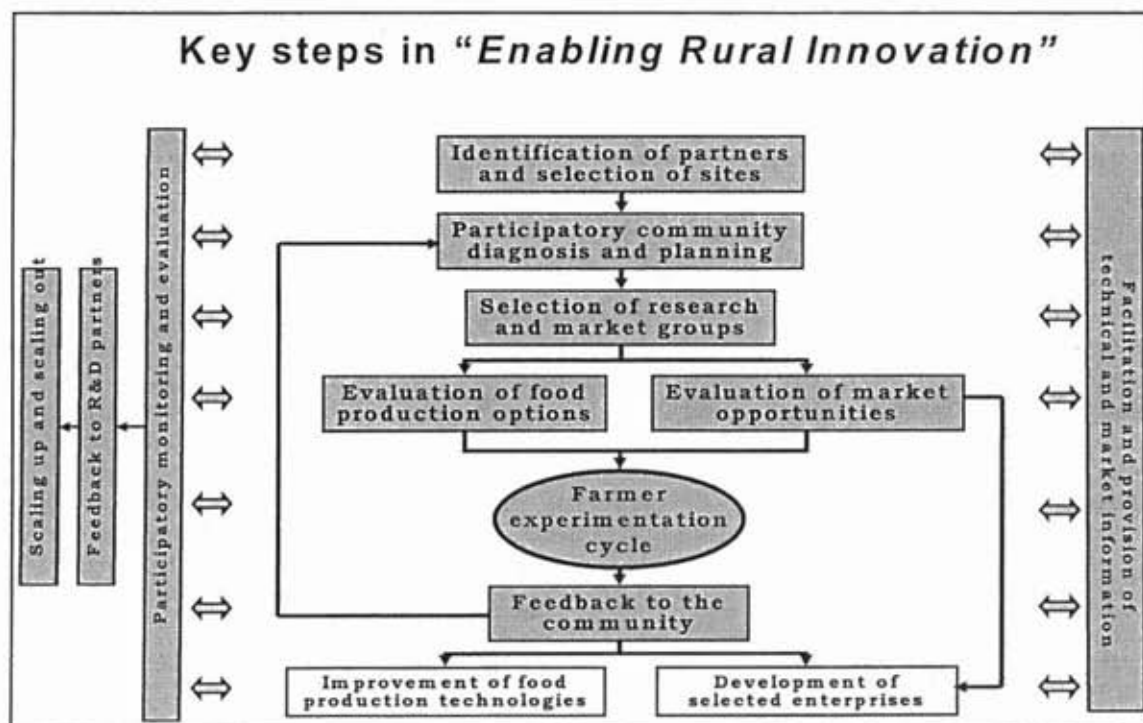
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and Narayan, 2000). Social capital is an important asset that can be called on in a crisis, to the extent that communities endowed with a diverse stock of social capital are in a stronger position, not only to confront poverty and vulnerability but 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 describes 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 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
Total	8	14

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	Discuss potential barriers to partnership openly and establish norms for working together Be transparent, putting all issues on the table, including the budget, expectations and deliverables) Avoid even the appearance of withholding information Decide together how decisions will be made and how resources will be allocated Ask for input from all partners, listen, don't dominate Be patient, flexible and willing to do things in different ways Confront conflicts quickly and directly Clarify roles and responsibilities Spend time in building social capital
Communication	Have project call meetings at which all partners are present

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

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
Uganda		
Kabale	Muguli B	47
	Karambo	57
	Nyabyumba	25
	Nyakibande	32
Tororo	Katamata	25
	Awanya	30
Masindi	Katwemukye	21
	Wekambe	25

Countries	Communities/Groups	No. Farmers
Tanzania		
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
Malawi		
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
Uganda		
Kabale,	pyrethrum, eggs	common beans
	potatoes, goats	beans
Tororo	beans, peanuts	beans, maize
		beans maize peanuts
Hoima	onions, mangoes, pigs	beans

Country and Site	Enterprises Selected	Food Security
		sweet potatoes
Tanzania		
Hai	Beans sunflower garlic tomatoes	beans maize
Lushoto, Shashui	tomatoes, beans, zucchini, red peppers	beans
Malawi		
Dedza	goats, beans, rabbits, pigs	potatoes beans
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.

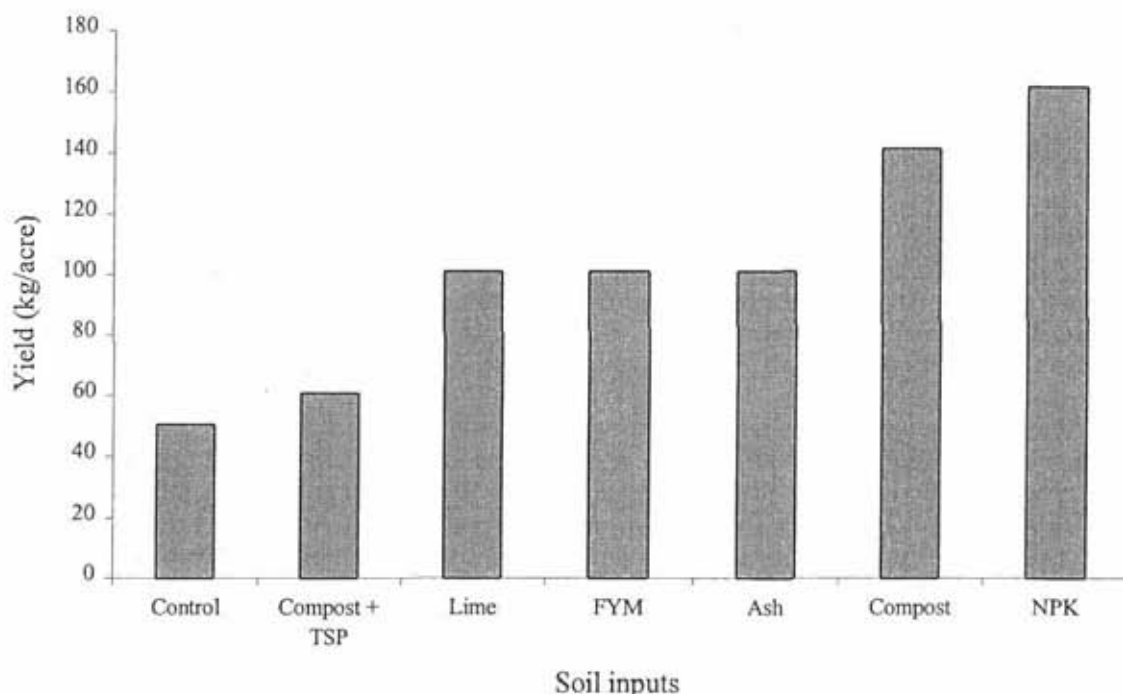


Figure 2. Effect of soil input to pyrethrum flower yields

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.

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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

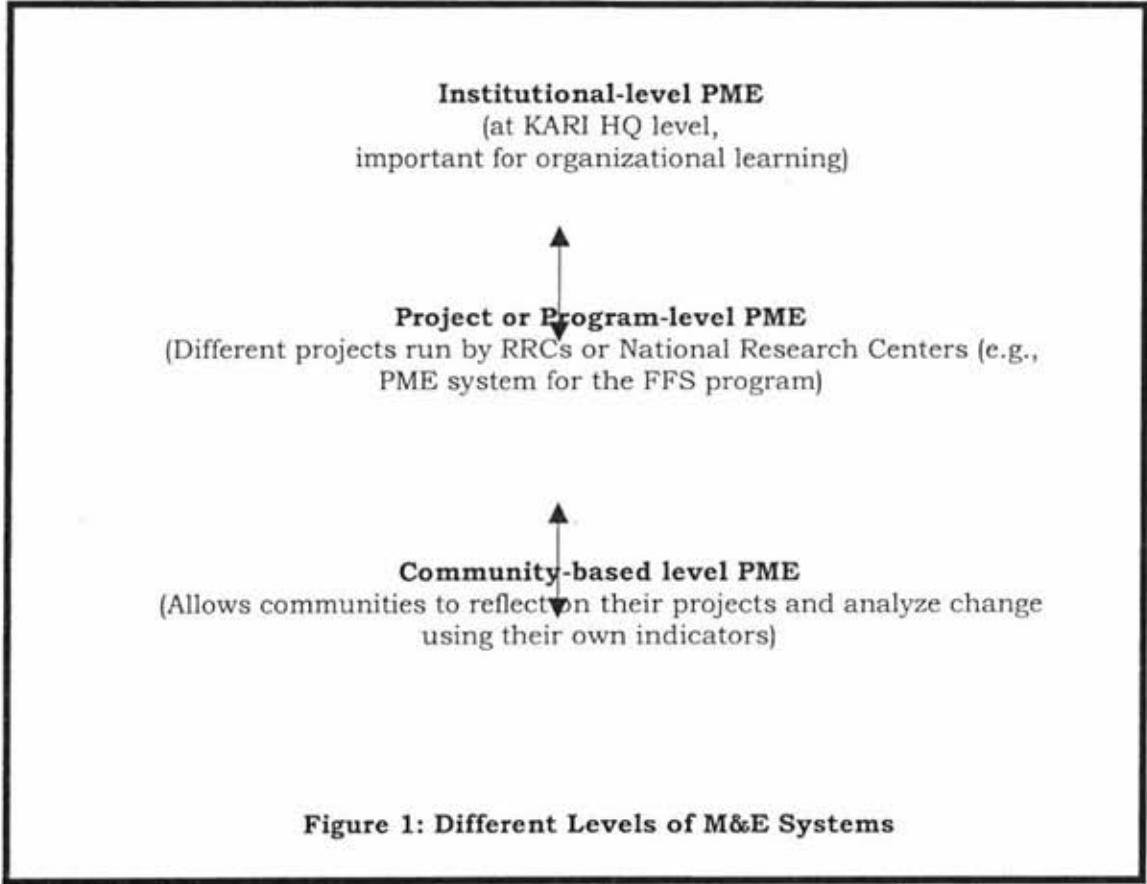
- Scope of both participatory and formal M&E systems in supporting the institutional change processes
- Role of an M&E System in supporting adaptive/participatory research programs from a KARI perspective
- Sharing experiences and identifying opportunities and challenges of implementing PME systems
 - 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

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.

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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.



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.

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).

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

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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.

Levels	Criteria
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.

<i>Level</i>	Criteria
<i>Rich</i>	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 8-15 sheep 2 pigs Chickens
Fairly rich	2 ha of land Houses of adobe (Candelaria and Tabla Mayu) 2-5 cows 5-10 sheep 1 pig
<i>Poor</i>	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.

Level	Criteria
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.

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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.

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

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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*¹⁷, 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.

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.

¹⁷ Compulsory community service.

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.

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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 converging 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.

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

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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 Hillsides - 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 Jicaró
<u>CIALs:</u> El Jardín, Los Girasoles (women), Nueva Vida (El Chile)	<u>CIALs:</u> Santa Fe, 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.

	Sector Zapote /Chile	Sector Carrizal/Zarzal/Corozo	Sector Mesas/Wibuse/Jicaró
Attendance (no. people)	33 (43% women)	37 (54% women)	34 (35% women)
Identification of topics	Low quantity and quality of water Low soil fertility Scarcity of firewood	Loss of soil fertility Scarcity of firewood Low quantity and quality water Burning fields	Low quantity and quality of water Loss of soil fertility Regular supply of firewood
Social capital	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
Problems for	Producers mention the	Producers mention the	Lack of own plots; rapid

NRM	increase in population (about 4.2% yearly) and lack of land	increase in the population (about 4.2% yearly)	changes in leased plots
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Table 3. Preliminary results of the reflection workshop, San Dionisio, Matagalpa.

	Sector Zapote /Chile	sector Carrizal/Zarzal/Corozo	Sector Mesas/Wibuse/Jicaro
Attendance (no. people)	36 (31% women)	44 (55% women)	36 (44% women)
Prioritization of topics	<p><u>Men</u>: water (12), firewood (7), soils (6) <u>Women</u>: water (4), firewood (4), soils (3)</p> <p>Low quantity and quality of water Scarcity of firewood Low soil fertility</p>	<p><u>Men</u>: soil (16), firewood (2), water (0) <u>Women</u>: Soil (11), firewood (9), water (0)</p> <p>Loss of soil fertility Scarcity firewood Low quantity and quality water Burning fields</p>	<p><u>Men</u>: water (20), firewood (0), soil (0) <u>Women</u>: Water (14), firewood (2), soil (0)</p> <p>Low quantity and quality of water. Regular availability of firewood Loss of soil fertility</p>

	Sector Zapote /Chile	sector Carrizal/Zarzal/Corozo	Sector Mesas/Wibuse/Jicaro
Problems for NRM	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.
Planning	Plant Calliandra (<i>C. calothyrsus</i>) to improve the supply of firewood. Construct micro-dams to improve access to water.	Establish live and dead barriers to improve soil fertility. Establish legume <i>Canavalia brasiliensis</i> in plots during the summer.	Plant Calliandra (<i>C. calothyrsus</i>) to improve supply of firewood. Construct micro-dams to improve access to water.

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

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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, 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

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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 propagation³⁰ 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.

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)

³⁰ The system of clonal multiplication reproduces the same gene material as the mother plant selected and minimizes the transmission of systemic diseases.

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 Ruiz 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 Ruiz, 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**

Name	Experience (yr)	No. Plants	Selection Based on Survey	Interested in Participating
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		
New farmers				
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?

OUTPUT 3. PROFESSIONALS AND OTHERS TRAINED AS FACILITATORS OF THE PARTICIPATORY RESEARCH APPROACH

Milestones

Professionals trained in the use of PR tools and methods
 PME training strategy tested in potato production systems in Toralapa, Bolivia
 Capacity of Bolivian national partners for implementing and supporting PME Systems within their communities, strengthened
 PME training strategy strengthened by the exchange of experiences in the training workshops
 Farmers' groups-experimenters initiating agroenterprise activities based on the technology generated in their experiments
 Technicians of partner institutions in the Andean zone applying and promoting an agribusiness orientation in farmers' groups

Professionals trained in the use of PR tools and methods

Table 1. Participation in training events related to PR.

Dates	City & Country	Event	Participating Institutions	No. Participants
Feb.	Kabale, Uganda: Tanzania, Kenya, Malawi	FPR & PMR workshop	NARO	15
Feb. 10-11	Lilongwe, Malawi	Stakeholder project inception workshop & consultations	Ministry of Agriculture, Dept. of Agricultural Research & Technical Services, Dept. of Agricultural Extension CARE Malawi World Vision Plan International Malawi Lilongwe Agricultural Development Division	12 9
Feb. 17-18	Lushoto, Tanzania	Project inception workshop	Africa Highlands Initiative Traditional Irrigation & Environment Protection Programme District Dept. of Agricultural & Livestock Development Lishe Trust SECAP	8
Feb. 24-27	Jinja, Uganda	Follow-up & action plans development workshop	NARO Agricultural Research Development Centres District Extension Coordinators National Agricultural Advisory Services	24

Dates	City & Country	Event	Participating Institutions	No. Participants
			Action Aid Africa 2000 Network Africare	
Mar. 3-8	Honduras	Training workshop on management of CIAL database	FIPAH EAP Zamorano	8
Mar. 24-28	Lushoto, Tanzania	Market facilitators workshop	TIP Africare Lilongwe ADD DARS, Malawi Africa Highlands Initiative Lishe Trust NARO-ARDC	20
Mar. 24-Apr. 4	Toralapa, Bolivia	CIAL methodology & PME System	ACDI-VOCA Tarija Prefecture PROMETA-INNOVA GNTP-NUR PRODII JAINA CAD CIAT-SC-INNOVA QHANA Community Education Center FCAP-UMSS PROSUOCO ASAR Mayor's Office, Llallagua FDTA Valles APG AGAVAT FOCAM UTA-CEDAG-Tarija Pref. PROINPA PROMACEL-UMSS NIAP-Ecuador	29
Mar. 31-Apr. 11	Salima, Malawi	Integrating FPR & PMR	DARS LADD CARE Plan International TIP-Tanzania NARO-Uganda CIAT	22
Mar. 24	Nairobi, Kenya	Stakeholder consultative meeting on "Strengthening institutional change process by enhancing participation of farmers in R&D process"	KARI CMAD EAT	12
May 7	Cali, Colombia	Workshop on PR	Foundation CIPAV INTEP	10

Dates	City & Country	Event	Participating Institutions	No. Participants
			Institute of Education Technical Professional Communities & Watersheds, CIAT	
May 26-31	Kabale, Uganda	Integrated agroenterprise development of potatoes	Africare Uganda National Potato Seed Production Association	20
Various	Kabale, Uganda; Lushoto, Tanzania; Dedza, Malawi	Community workshop on leadership skills & gender	Farmers from pilot communities in ERI sites NGO partners	45

Dates	City & Country	Event	Participating Institutions	No. Participants
July 1- 3	Popayán (Cauca), Colombia	Training for rural agroenterprise development, with emphasis on financial management, Gloria Liliana Lasso Buitrago	10 CIALs from CORFOCIAL with the participation of 15 farmers & 2 technicians	17
July 28-Aug. 2	Jinja, Uganda	Integrating gender analysis	NARO ARDC	22
Aug. 11-16	Tororo, Uganda	Market opportunity identification & enterprise selection	Africa 2000 network Cash farm NAADS Tororo district Katamata Farmers' Group	23
Sept. 28-Oct. 11	Arusha, Tanzania	PR approaches & scaling-up strategies for soil-fertility management	TSBF-Africa soil fertility network	32
Oct. 27-Oct. 31	Tororo, Uganda	PME	Africare Africa 2000 Network NARO DARS LADD TIP DALDO KARI EAT ILRI	24
TOTAL		17	75	352

Background

The strategy of capacity building in the “Promoting Changes” project determined that the Bolivian system of agricultural and livestock innovation would be strengthened if those who provide the services of research and technical assistance were experts in participatory methodologies. It also states that to build a critical mass of experts in these methodologies, it is necessary to build these capacities in the institutions and organizations to support the target groups to incorporate those methodologies in the technological innovation processes.

Based on the aforementioned strategy, the “Promoting Changes” project has been promoting training workshops in participatory monitoring and evaluation (PME) to share experiences with this approach, identify groups of people or organizations interested in collaborative activities in the future, and develop appropriate PME systems in Bolivia.

This PME workshop describes the methodology that is being used to train groups of technicians, professionals and farmers in PME. At the end an analysis of the experience was done, and commitments to implement the systems by the trainees were established.

Objectives

The following objectives were proposed for the workshop:

Strengthen the knowledge about PME

Promote the establishment of PME systems

Exchange knowledge and experiences about the establishment of PME systems

Provide tools and methods to promote the establishment of PME systems

Suggest some steps for establishing PME systems

Methodology

Participants' expectations and their relation to the workshop objectives

Table 1 gives the predetermined objectives of the workshop and the participants' expectations prior to beginning the event.

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³² Research Assistant III, SN-3 Project, CIAT, Colombia

Table 1. The participants' expectations and their relation to the workshop objectives.

PME Workshop Objectives	Participants' Expectations
Strengthen the knowledge on PME	Increase knowledge on PME to apply it to the institution's activities and projects Know and learn new knowledge to be able to carry out PME in the CIALs
Promote the establishment of PME systems	Learn about PME Form a good conceptualization of PME methodologies Increase the knowledge on PME techniques Improve knowledge through participation Acquire knowledge and skills on PME Learn more about PME, as well as learn new strategies related to it
Exchange knowledge and experiences about establishing PME systems	Strengthen capacities through the exchange of experiences Exchange experiences in PME
Provide tools and methods for promoting the establishment of PME systems	Learn methodological tools to strengthen CIALs Expand knowledge, instruments, methods for PME
Suggest some steps for establishing PME systems	
Agree upon action plans with the entities participating in the workshop to establish PME systems	Establish relations with all participants to establish joint work in PME
	Establish solid relationships with participants

The first column of Table 1 relates the predetermined workshop objectives in relation to the participants' expectations. In general the expectations and the objectives are correlated. Some of the participants' expectations have an indirect relation to the objectives. For example, the establishment of solid relationships with the participants is related to the exchange of experiences, just as the steps in the methodology are related to methods for establishing PME systems. Thus it was not necessary to adjust the content of the workshop considering the correlation between the expectations and the objectives.

Analysis of experiences in PME processes (participants' presentations)

The analysis of the presentations indicated that the PME systems have a project focus and logframe. Thus the participation of the users is relative in terms of the definition of indicators, formats, use of the information, etc. The most outstanding aspects of the presentations are highlighted here:

Project focus for PME. The presentations indicated that the systems they are going to monitor have pre established work plans where the producers have not participated in their design (consultative participation).

Logframe approach. The presentations showed that the activities in the PME systems are based on logframes. This implies predetermined activities, measurable indicators that can be verified, etc.; which confirms a project focus determined

mainly by the interests of the entities or donors and, of course, with very low producer participation.

Negotiated indicators. In the presentations it was observed that the predetermined indicators enter in a process of concertation (negotiation) with the producers. In this way the users of the PME systems do not intervene in the design itself.

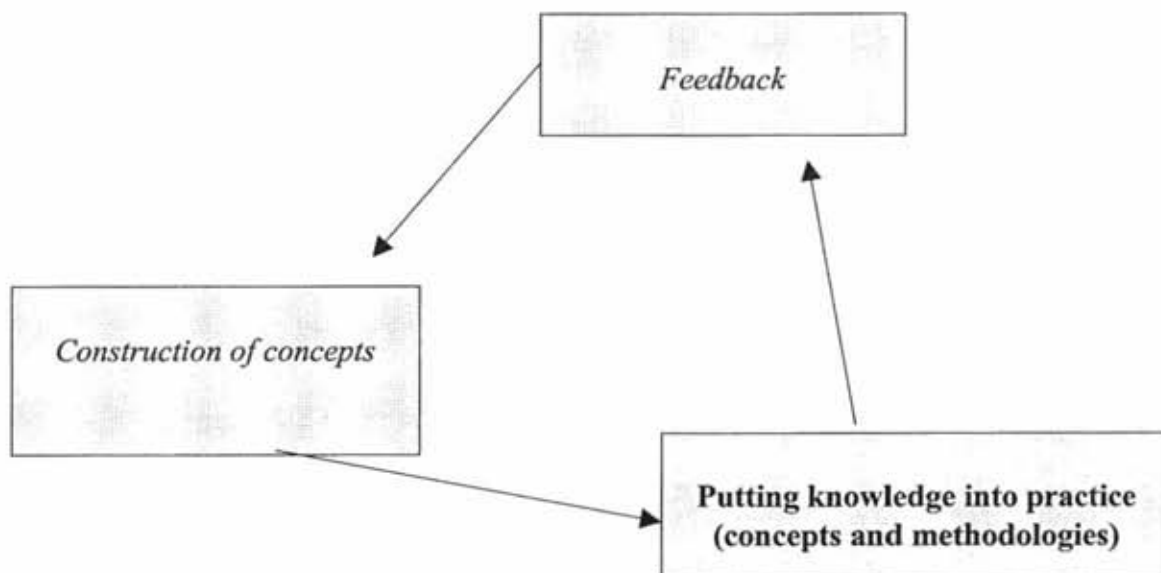
Other presentations. Some participants related research experiences in which communities intervened in a consultative fashion, without having true PME systems.

In conclusion we can affirm that the PME experiences presented by the participants have a project focus characterized by low levels of user participation, different from the PME system offered in the workshop, in which the users should be involved throughout the process. Nevertheless, there is a great opportunity for establishing PME within the new approach of the Bolivian system of agricultural and livestock technology (SIBTA), given that it starts with the demand of the beneficiary interest groups.

Strategy for training as part of the PME process

The facilitators promote discussions on the different topics referring to the PME, then they construct concepts and finally there is feedback from experiences in other contexts. Having finished this process, the participants can apply the knowledge acquired with interest groups and then discuss the results of the practice in plenary session.

Strategy of learning by doing



Conceptualization (Training Module 1)

First the participants' knowledge on the different concepts is determined and then it is reinforced with the presentation of drawings that represent the concepts in the daily activities of the interest groups. For this purpose, cards are used and each participant writes down what he/she knows about them. Then the related concepts are grouped in an exercise in a plenary session. Finally, an agreement is reached on the concepts.

After doing this exercise the following results were obtained (Table 2).

Table 2. Knowledge on the PME concepts.

Concept	Participants' Results
<i>Monitoring</i>	Verification Accompanying the activities
<i>Evaluation</i>	Assessment of results Grade something Assign value to something
<i>Participation</i>	Joint decision-making (all actors of the process)
<i>Indicator</i>	Sign Something that orients us Something that tells us where we are going and where we have to go

Analysis of the exercise at the level of the workshop participants

The process of conceptualization is easy, and there is good congruence with results in other contexts.

The following distinction was made between monitoring and evaluation: accompanying and verifying activities that are developed in a process (monitoring); and assign a value to the results obtained at given times to ensure that the decision-making process leads to the completion of the proposed objectives (evaluation).

Conceptualization exercise at the level of the interest groups

General description of the interest groups (farmers): The practice was implemented with farmers from the town of Candelaria in the Municipality of Colomi, which has 18 communities and 8 CIALs established. It is a microcenter of biodiversity with 70 varieties of Andean potatoes and 16 varieties of smooth-skinned tubers (*Ullucus tuberosus*). The CIAL in Candelaria has worked with these native potatoes with good results. Of 38 varieties evaluated for adaptation, they have selected 5. They are seed producers and want to give added value to their production with good selection and packing.

The workshop participants decided to define the terms based on the description of the potato crop. They asked the interest group to describe the cycle of the crop and then tried to link them to the terms Monitoring (M), Evaluation (E), Participation (P) and Indicators (I).

Analysis of the exercise at the level of the interest group in Candelaria. It was easy to describe the crop cycle for the participants in the workshop, but very difficult to relate them to the concepts (M,E,P, I). On occasions, for lack of mechanisms to accomplish the objective of the practice, the facilitators had to lead the participants.

Based on experiences in other contexts, it is preferable to conceptualize using activities known by the groups, before using an activity without preparing mechanisms that reflect the relations that are sought. In any case, the PME methodology was presented as a flexible format to be enriched in case of success.

Use of illustrations

Nowadays drawings are used to facilitate the training of producers with any level of schooling. However, the participants at this PME workshop do not yet manage open-ended evaluations, probing questions, etc.; which ensure that the process is based on the free expression of the producers.

It would probably be very useful to think about how to link the processes or activities that are traditionally done in the interest groups (crops, animal management, etc.) with the conceptualization of monitoring, evaluation, participation, objectives, activities and indicators, developing new strategies to facilitate the process. It would be more interesting if they started with illustrations developed by their own interest groups. Is it possible to induce the groups when we use an activity specific to the group as an example? This question is a reflection that we should do in order to avoid having to lead the process.

Use of flow charts

The participants did not use flow charts. However, in the discussion and analysis of the practice, Fausto Merino (Research Assistant from Ecuador) emphasized the importance of their use and the difference that should be made with the "agenda for a meeting." This participatory tool is very useful in these training processes at the level of the interest groups. Displayed in visible places, the flow charts make it possible to orient the groups, discuss the process with them, orient the methodology that is going to be used, etc.; and the reason why its use is recommended in processes of establishing PME.

Conclusions on Training Module 1

In the process of inquiring into the participants' knowledge of terms such as M, E, P and I, the PME methodology proposes exploring their knowledge first and then establishing a relation between these terms and routine activities such as the management of a crop and/or use illustrations. In the former case, the new facilitators have to develop a strategy for constructing concepts.

It is also recommended to:

Revise the conceptualization of the flow chart and distinguish it from other tools such as the agenda for a meeting
Study and use flow charts, distinguishing them from other tools such as the agenda
Practice the technique of open-ended evaluation to obtain greater spontaneity of the interest groups.

Formulation of the overall objective, current and future situation, activities, indicators and formats (Training Module 2)

Table 3 gives the definition of each term from Module 2. In the definition of the objectives, the relations with the concept "goals" and their characteristics such as "reachable," "verifiable," "concrete," "clear," etc. are highlighted. Moreover, the participants understand the importance of having objectives.

Table 3. Knowledge on objectives, their characteristics and importance.

Questions	Participants' Responses
<i>What is an objective?</i>	It is a goal drawn up It is what you propose to reach at the end of a process It is a dream proposed
<i>What characteristics should an objective have?</i>	Reachable Measurable Clear Concrete Verifiable
<i>Why is it important to have a good objective?</i>	To have the future clearer To know what we have to do ahead of time To know where you want to go and structure a good work plan

To understand the current and future situation, predesigned illustrations were used that showed, through a time line, the activities that needed to be done chronologically in order to reach the proposed goals.

With the objectives of each entity, an exercise was done that made it possible to build the overall objective and the current and future situation of the same. Then the components of this objective were analyzed, and one was selected. Based on the one selected, the activities indispensable for reaching the objective were analyzed, and for some of them the indicators were defined. The participants defined the components of the formats in terms of "indicators," "time," "person responsible," etc.

Analysis of the exercise at the level of the interest group. **The field practice of was done with 24 farmers belonging to the association of producers of seed potatoes. Four subgroups of 6 people each were formed.**

Table 4 indicates that the subgroups, working simultaneously (independently), managed to define objectives, indicators and activities (they were also able to design formats). An interesting result reflected in this table is the fact that constructing the objective "better organization," they prioritized the same activity, "meetings" and thus obtained similar indicators such as "number of meetings" in all the subgroups. This could indicate the efficiency and efficacy of the proposed PME process (Table 4).

Table 4. Objectives, activities and indicators of the subgroups.

Working Group	Objective	Activities	Indicators
1	Strengthen our organization	Attend meetings	# of meetings
2	Grow as an organization	Meetings	Records of partners
3	Want to be organized	Look for interested people (meetings)	# of visits to communities
4	Produce and multiply seed in an organized way	Training	# of training events dedicated to seed multiplication

General conclusions

A capacity in the process of establishing PME was created.

Institutional commitments were established through the work plans presented.

The proposed PME process was well accepted by the participants, who generated diverse ideas on its application.

The facilitation of the PME processes should consider people who are able to speak Quechua because it is the language most frequently spoken in the communities.

It seems that the conceptualization of the diagnosis in the CIAL course caused confusion in the definition of the objectives of an interest group; nevertheless, the proposed PME system helped distinguish between the two concepts.

Promoting a business and market orientation in CIALs from Colombia, Ecuador and Bolivia: Report of follow-up activities to the Second Workshop on "Design of Integrated Agroenterprise Development Projects." Part 1: Cauca (Colombia) and Ecuador

Research: Carlos F. Ostertag³³

Background

This collaborative project between IPRA and the Rural Agroenterprise Development Project (RAeD, SN-1) at CIAT has focused on promoting a more businesslike perspective among some CIALs in Colombia, Ecuador and Bolivia. For this purpose, two 3-day workshops were held in Conocoto (Ecuador) in 2002, with the participation of technicians from NGOs that support the CIALs and their members. The first workshop focused on presenting basic business concepts and the methodology for identifying market opportunities for small rural producers, while the second workshop centered on the process of analyzing a production chain and the design of an integrated agroenterprise development project (IAP). The IAP consists in developing an action plan to strengthen the production chain under consideration.

This report³⁴ corresponds to the follow-up activities to the second workshop, consisting in the analysis and development of an action plan to strengthen the selected production chain. Reference is made to visits to Cauca and Ecuador to follow up the activities of a CIAL in Cauca, dedicated to maize production, and to three Ecuadorian CIALs located in the provinces of Chimborazo, Pichincha and Carchi.

CIAL in Morales (Cauca), 8 July

Activities carried out

This CIAL is located in Carpinteros, a village in the municipality of Morales in the Province of Cauca. There is a maize growers' association with 34 members. CORFOCIAL, the second-order organization, provides support through its technician, Bolívar Muñoz.

This CIAL is working on maize, sugarcane for making *panela*, a noncentrifuged sugar in block form, and guinea pigs. After prioritizing, they decided to focus on yellow and white maize. With the collaboration of the CIAL leader, they conducted a rapid market study to identify potential buyers of maize in Piendamó and Popayán. They proceeded to identify the different actors in the chain. They studied the support system for maize (Office of the Mayor, CORFOCIAL, SENA, etc.). The organization of maize growers was evaluated, which revealed a deficiency in outcomes and in the level of commitment of several members. Based on this analysis, the organization has undergone an overhaul. They proceeded with the analysis of the critical points in the production, processing and marketing links. Then they prepared the problem trees to identify the causes and effects of the diverse limiting factors in the chain. They then converted the problem tree into an objectives tree, ending up with the action plan or the design of the IAP. They plan to write and present a project to the Office of the Mayor of Morales. They are very interested in lowering production costs and in initiating activities to generate aggregate value.

In the process of analyzing the chain, the CIAL had problems in bringing together the middlemen and merchants in a meeting; thus they had to limit their meetings to the

³³MSIM – RAeD Project, CIAT.

³⁴In this report recommendations are presented for each case separately; thus some of them are repeated.

producers. The commercial information was obtained from traveling and interviews in the work place.

Recommendations

First of all, the Maize Growers' Association should strengthen their leadership and administration in order to have well-founded objectives and strategies. The members should also know what their specific responsibilities are and be committed to reaching the objectives they have set. The Association should also adopt an organizational chart with well-defined functions in order to develop their business activities more efficiently and effectively. This point is in addition to the fact that the Association needs to execute the action plan it has proposed to strengthen its position in the maize chain.

The leaders of the Association or the CIAL with an aptitude for business should receive training and technical support in business, including business and market orientation, foundations of business management, strategic planning and preparation of business plans. It is not sufficient to give a short training course on the topic to the technician of the supporting entity.

For this purpose it is recommended that the Association carry out processes of strategic planning and develop business plans for the production activity and business selected. Although these topics were presented in the first workshop in Conocoto (Mar. 2002), the importance of organizing a workshop for technical advisors of the CIALs and producers on the topic of the business plan was communicated to IPRA.

This CIAL should examine in greater depth the market study on maize in Colombia, including the diverse segments (grain, processed and transformed) and trends in domestic production and imports.

They should also review the cost structure that they are using at present in order to become competitive. It is recommended that they use the RAeD software, RentAgro. The CIAL's agricultural research should support this point.

In their analysis there was no figure illustrating the links and actors of the chain, including importers of maize and the diverse market segments.

One of the CIAL leaders expressed his interest in business-oriented training and technical support. This and credit are the main needs of the CIAL in its efforts to strengthen its business. This point is related to compliance with the recommendations made in the first point.

CIAL Flor Naciente, near Riobamba (Chimborazo), 12 August

Activities carried out

This CIAL, which is a half hour from Riobamba, consists mostly of indigenous women. It is located in the parish of San Juan, alt. 3300 m. The community works on 38 ha of an old hacienda that they have been buying with the fruit of their hard work, farming. They have the support of the FORTIPAPA project, through their technician Julián Pucha, to study new potato varieties including Papa-pan, Fripapa, Rosita and Santa Isabela, using their traditional variety Rábida as a check. They are also doing research on upland rice, which did not do well and quinoa, of which they already have 6 lines approved.

Their work can be divided into two types: preparation of the proposal for the IAP on potatoes (FORTIPAPA) and business development for transforming the production (CIAL and FORTIPAPA).

Development of IAP

The technician Julián Pucha applied the methodology of identifying market opportunities (topic of the first workshop), consisting in the preparation of a biophysical and socioeconomic profile of the region of the CIAL in question and the execution of a rapid appraisal of markets in Riobamba. The following market opportunities were detected: potatoes, *chochos*, peas, *taxo* and “*mortño*”.

The potato chain in Ecuador was analyzed, working from the national level down to the CIAL community, using the IAP methodology presented in the second workshop in Conocoto (Aug. 2002). The technician based the exercise partially on work done by FORTIPAPA, focusing on three products: potato chips, potatoes cut in thin strips for french fries, and whole potatoes, washed and selected. An evaluation of the CIAL Nuevo Amanecer was also included.

It should be noted that FORTIPAPA is in the process of entering into an alliance with several institutions including the Project Emprender, implemented by the Swiss NGO InterCooperation, in order to execute an IAP at the level of Ecuador, with emphasis on the market development of new potato-based products, targeted to supermarkets and agroindustries. FORTIPAPA also plans to conduct a more complete market study for the diverse products derived from potatoes, with the support of local universities.

Business development

It is important to highlight this joint work between FORTIPAPA and the CIAL, given that with the CIAL's own resources and the enthusiasm of the promoter Hilaria, they were able to do research on processes for making potatoes for french fries as well as potato chips. After some technological explorations with the potatoes cut in thin strips, they reached the conclusion that they needed to perfect the process by adding antioxidants to keep the potatoes from darkening in color. They finally decided to work with the other product: potato chips in bags.

The CIAL Nuevo Amanecer has worked out a process to make this product, for which they tested several varieties of potatoes and several types of oil. They had technical support from a FORTIPAPA foods engineer for the frying tests. They have begun local sales on a small scale in schools and at fairs, with a volume of about 300 bags (100 g each) weekly. They have rustic equipment such as plastic recipients, large frying pans, stove and slicers, bought by them and by FORTIPAPA; and they seal the bags by heat, using a candle and a knife.

The process of making the potato chips is as follows:

They wash the unpeeled potatoes manually.

They select the potatoes manually, preferring those that are healthy and have a uniform shape

They peel the potatoes manually, trying to remove only the peel.

The peeled potatoes are re-washed.

The potatoes are cut into thin slices.

If the variety used is Fripapa, it is fried directly; if it is another one such as Papa-pan, the chips have to be cooked 3 min. before frying.

The chips are removed from the pan, and the oil is left to run off.

The chips are placed in a polyethylene bag, sprinkled with salt and sealed with a knife, heated with the candle.

The CIAL has also calculated the cost structure for processing 25 kg of potatoes, and they know what their gross profit margin is. In their structure they have included the cost of their labor.

Recommendations

All actors (IPRA, the local support institution and the CIAL itself) should bear in mind where the CIAL ends as a research body and where the rural agroenterprise begins. It is important to define whether the members of the CIAL and the agroenterprise are the same individuals or whether it is necessary to involve others. The rural agroenterprise should adopt an organizational chart with well-defined functions in order to carry out their business activities more efficiently and effectively.

The leaders of the Association or the CIAL who have an aptitude for business should receive training and technical support on business. It is not enough for the technician of the supporting entity to have received a short training course on business because he/she will most likely not be present in the day-to-day running of the business.

The head of the young agroenterprise should implement processes of strategic planning and develop a business plan for the selected production activity and business. Although these topics were presented at the first workshop in Conocoto (Mar. 2002), the importance of organizing a workshop for the technical advisors of the CIALs and producers on the topic of the business plan was communicated to IPRA.

IPRA should promote the creation of complementary funds to support the transformation of the CIAL into a rural agroenterprise. Just as there are limited funds for agricultural research (US\$50-100 per CIAL), there could be a larger, rotating fund or a system of reimbursement to finance technical and business consultancies and minor investments (equipment and tools) for the CIALs to become rural agroenterprises. This model is being promoted by the NGO Randi Randi for the CIALs in El Carchi in northern Ecuador.

The CIAL Nuevo Amanecer should improve the quality of their product because the chips turn soft by the second day. Normally, potato chips can last more than 2 months without losing their crispness. According to experts in Colombia, this quality issue has to do with the following aspects, which could be new research topics for this CIAL:

The variety of the potato

The type of material used in the bag; explore changing from polyethylene to polypropylene

The frying temperature; the higher the temperature, the better ($\approx 200^{\circ}\text{C}$)

The peeled potatoes should have the starch removed by soaking them in water for several hours before frying.

In this sense, FORTIPAPA could support the CIAL by identifying an expert in the production of potato chips to offer a rapid solution to the problem of the product losing its crispness.

CIAL Nuevo Amanecer, San Agustín Parish, Quito (Pichincha); 14 August

Activities carried out

This CIAL has nine members (six stable), mostly mestizo women who have done research on guinea pigs, tomatoes, rabbits, chickens and laying hens. One of its members,

Antonio, is a young man who already has a rural agroenterprise that breeds and sells live guinea pigs, and who has participated in both workshops. This CIAL has the support of the NGO IIRR.

Two activities were held: A market study for yellow-footed, country-raised chickens in the capital city, Quito, followed by the analysis of the chain of country-raised chickens and the development of the action plan (IAP) for strengthening this chain. A good demand for these country-raised chickens was identified in Quito.

The second activity was to begin a rural agroenterprise for producing country-raised chickens to be sold alive. The CIAL selected this line of production because (1) they already had the knowledge, (2) the demand was identified in the rapid market appraisal, and (3) there is a more rapid return on the investment than with guinea pigs. With the community's own investment and contributions (mingas), they constructed a chicken coop with a capacity for 50 chickens. The rations consisted of a commercial concentrate, supplemented with coarsely milled maize. The chicks were given the first vaccine. The CIAL managed to raise and sell locally two broods, but in the third, the chickens died, probably because they changed the supplier of chicks, which suffered from being transported such a long distance. They also had to face a period of low prices because of the importation of chickens from Colombia and Peru. At present the price of chicken has begun to rise again.

The chicks are bought at 2-3 weeks, and after 5 weeks they reach commercial weight. Despite the failure of the third brood, the group plans to continue with the business, but they are now aware that they should improve their technology, especially with respect to the purchase of the chicks (chicks 1 wk old purchased from a reliable supplier nearby) and to improve the infrastructure (coop and cages). Their target market is the city of Quito, and not the local community, due to the better purchase price.

Recommendations

It is important that IPRA, IIRR and the CIAL itself have a clear idea of where the CIAL as a research body ends and where the rural agroenterprise begins. It is important to define whether the members of the CIAL and the members of the agroenterprise are the same people or whether it is necessary to involve other people. They should adopt an organizational chart with well-defined functions so as to develop their business activities more efficiently and effectively.

The head of the chicken agroenterprise should implement processes of strategic planning and develop a business plan for the production activity and business selected. Although these topics were presented in the first workshop in Conocoto (Mar. 2002), the importance of organizing a workshop for technical advisors of the CIALs and producers on the topic of the business plan was communicated to IPRA.

It is important that IPRA promote the creation of complementary funds to support the transformation of the CIAL into a rural agroenterprise. Similar to the funds available for agricultural research (US \$50-100 per CIAL), there could be a larger rotating fund or system of reimbursement to finance technical and business consultancies and minor investments (equipment and tools) for the CIALs in the process of becoming rural agroenterprises. This model is being promoted by the NGO Randi Randi for the CIALs of El Carchi in northern Ecuador.

The IIRR should offer more technical support, to the extent that their resources permit. If this is not possible, IPRA should support this CIAL with resources so that they can obtain the advice of an expert in raising broiler chickens on topics such as minimum infrastructure, biological control of pests and diseases, and nutrition.

CIALs in El Ángel (Carchi), 13 August

According to the technician Patricio Ponce of Manrecur, the activities of the CIALs in this zone in northern Ecuador have been suspended for lack of funds. Manrecur did not implement the design of the IAP. The CIALs in the upper zone have been working on fodder beets, blackberries and native plants; while those of the lower zone have been working on raising animals such as guinea pigs, pigs, chickens and sheep.

The new Project Manrecur 3 has a more business-oriented approach and will continue with the CIALs, but they intend to decrease the dependency of the CIAL on the technician. There will be two funds to support the CIALs: the conventional one of US\$1000 to support the research activities for 10-15 CIALs, which will be rotating in nature, and the other, an investment fund of US\$10,000. In this way the CIAL has the opportunity to pass from the Research Fund to the Investment Fund. An alliance among Manrecur, EcoPark and Manrena is also being explored in order to develop a process of Training of Trainers on the topic of the CIAL methodology.

Recommendations

Workshop on business concepts and preparation of the business plan to train producers.

This workshop can be held in November of this year or leave it for the first quarter of 2004. It would be convenient for CIAL producers interested in the business and whose educational level is not too low to participate. The agenda should include a review of basic business concepts (business and market orientation, foundations of business management, strategic planning and preparation of business plans), before proceeding to the topic of business plans. The topic of business plans can be approached first with the theory, then an example and finally develop a business plan in groups of two or three people.

Organizational charts for the business. For each case the decision as to whether the CIAL and the rural agroenterprises should involve the same people or not, should be taken very rationally. The agroenterprise requires positions and functions that are certainly different from those of a CIAL, given that their objectives are different although there is some overlapping.

OUTPUT 4. MATERIALS AND INFORMATION ON PARTICIPATORY RESEARCH APPROACHES, ANALYTICAL TOOLS, INDIGENOUS KNOWLEDGE AND ORGANIZATIONAL PRINCIPLES, DEVELOPED

Extension through farmer research: Local Agricultural Research Committees (CIALS) in Latin America

Researchers: Carlos Arturo Quiró³⁵, Boru Douthwaite,³⁶ Jose Ignacio Roa,³⁷ Jacqueline Ashby³⁸

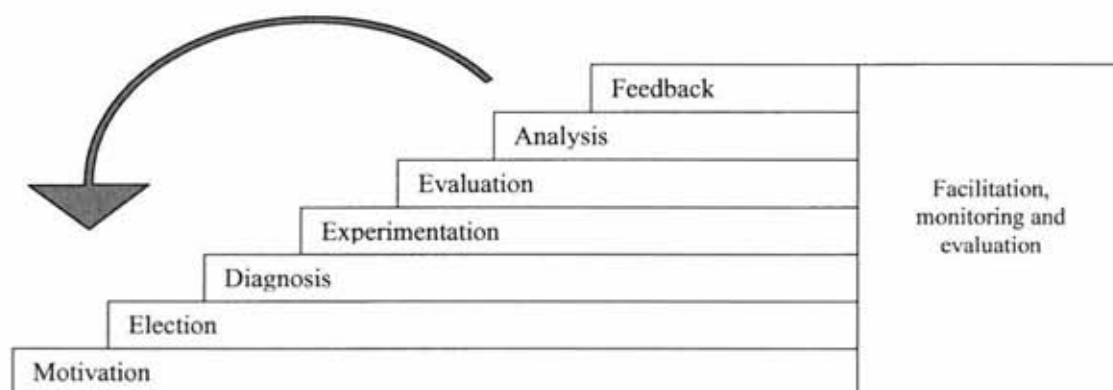
Highlights

Book chapter written for a World Bank book entitled "Extension through Farmer Research: Local Agricultural Research Committees (CIALS) in Latin America"

Identification of the case

A CIAL is a committee of people who volunteer to carry out experiments in rural areas on behalf of their clients. The client group from which the committee comes may be a rural community, an agroenterprise, an interest group such as a women's group, or a producer organization. CIALs help foster equitable rural innovation by sharing the knowledge, experience and benefits that comes from experimentation, while at the same time sharing the inherent risks and costs.

The first step in forming a CIAL is when a group becomes motivated to do so through contact with a CIAL facilitator or hearing about the method from other farmers. The group then meets to elect a committee and to identify problems and opportunities, prioritize them and then mandate the committee to experiment on their behalf. The committee then designs experiments to meet this mandate. The CIAL method reduces the risk of financial loss if their experiments fail by stipulating that the trial plots should start small. In addition, the method reduces the risk of the committee recommending an inappropriate technology by stipulating that each trial should be replicated, and the promising trials be repeated for three seasons on larger and larger plots. All the steps in the CIAL process are shown in Figure 1.



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Figure 1: The CIAL process (Ashby et al.,2000).

A team at the International Center for Tropical Agriculture (CIAT) developed the CIAL method in the early 1990s. The team had worked for more than five years to understand why resource-poor farmers in particular were not adopting technologies produced by formal-sector research. They concluded that if adoption rates were to increase, then farmers must be included earlier in the design, testing and local adaptation of new technologies. However, they recognized that to do this in the complex and risk-prone environments on which millions of farmers depend would be extremely costly and slow unless farming communities themselves took much of the initiative. Hence the team developed the CIAL method as a way of enabling farming communities to carry out their own on-farm evaluation and adaptation. One of the features of the CIAL method is that farmers should learn about and use the concept of experimental replication so that formal sector R&D can use their results and thus become more sensitive to the needs of poor rural communities.

Although CIALs were designed to be a cheap way for a research and extension service to expand their reach, CIALs do have costs associated with them. The main costs are training the facilitators who support the process, and providing the CIALs with a small research fund (Ashby et al. 2000). The costs of setting up a CIAL for the period 1990-1998 were estimated to be US\$670 for the first year and US\$325 per year for the next 5 years. The return on investment was estimated conservatively at 78%. This is likely to be much higher now, however, because costs of setting up and sustaining CIALs have been greatly reduced through "learning by doing." For example, it has been found that experienced farmers can adequately train facilitators much more cheaply than salaried professionals, and under the right conditions one facilitator can support up to 50 CIALs. First year start-up costs now range from US \$25-\$500 per CIAL, in cash or kind (Ashby, 2003).

Impact

CIAT began by establishing five CIALs in Cauca Province in Colombia in 1990, with funding from the Kellogg Foundation. By late 1991 the CIAT team had established a total of 18 CIALs, and this number grew to 55 by 1994. CIAT has also trained trainers from other countries and other organizations, including the International Institute of Rural Reconstruction (IIRR), National Autonomous Institute of Agricultural and Livestock Research (INIAP) in Ecuador, Potato Research Program (PROINPA) in Bolivia, Corporation, Colombian Institute of Agricultural and Livestock Research (CORPOICA) in Colombia and Participatory Research in Central America (IPCA). These organizations then went on to set up their own CIALS, and as a result there are now more than 250 active CIALS in 8 Latin American countries (Figure 2) and an unknown number of adaptations of the approach in sub-Saharan Africa and Asia, including China. As of 2002, 57% of the known CIALs were supported by non-government organizations and a third by government organizations. The others were facilitated by consortia of two or more cooperating organizations.

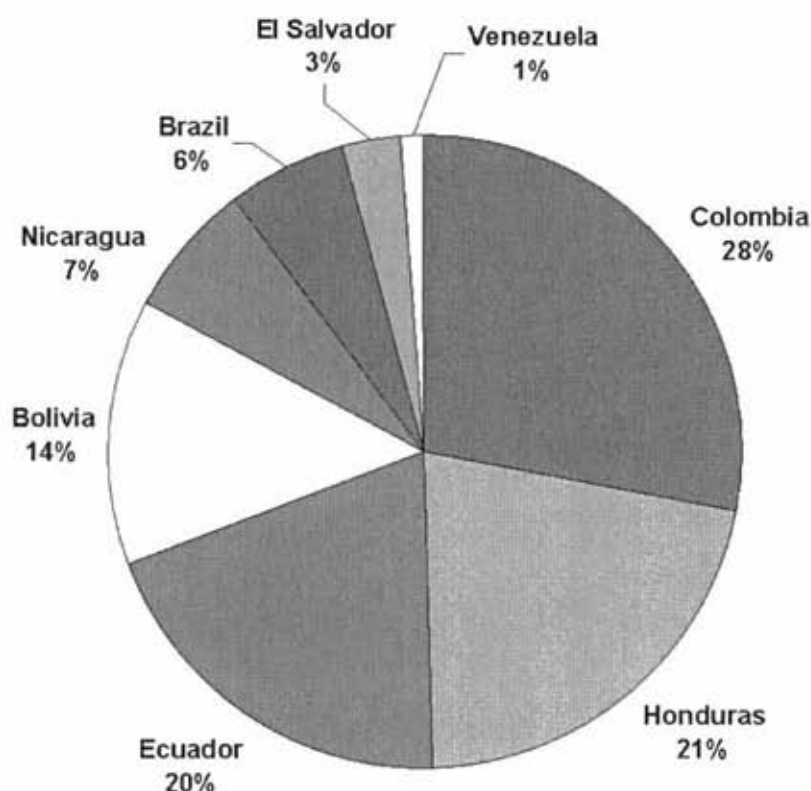


Figure 2: The countries that are hosting CIALs in Latin America.

During the CIAL diagnostic process, most communities assign first priority to research on their major food crops (Figure 3). Thus in Honduras most CIALs are working on common beans and maize—the two most important ingredients of the local diet; while in the Andean regions of Ecuador and Bolivia, communities prioritize potatoes and broad (faba) beans. In the few areas with good food security, CIAL research covers a broader range of themes (Figure 4). Under these conditions committees seek to raise incomes by taking up new crops or adding value to traditional ones through improved processing.

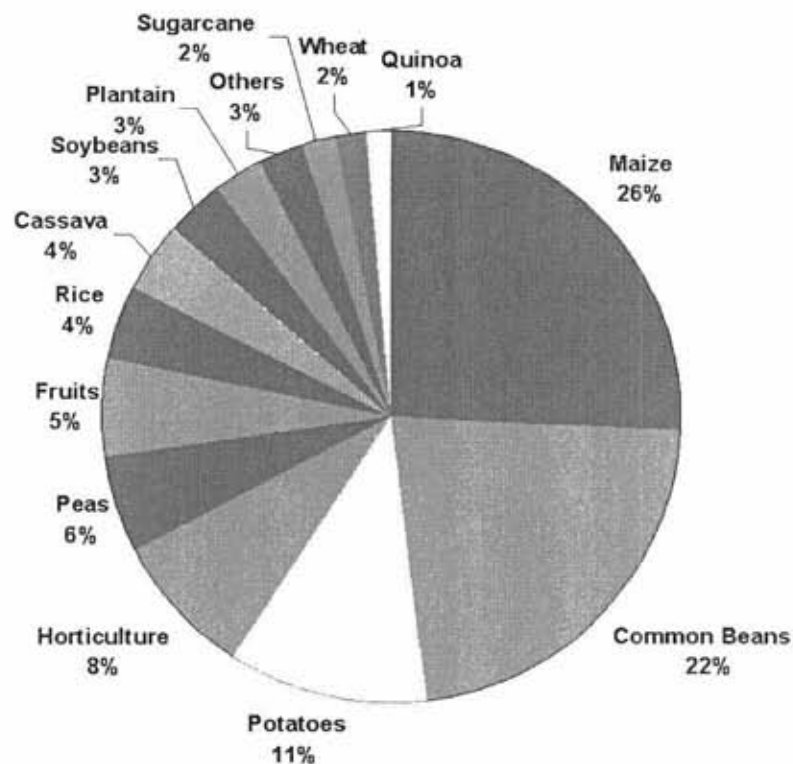


Figure 3: Crops researched by 250 CIAL communities in Latin America.

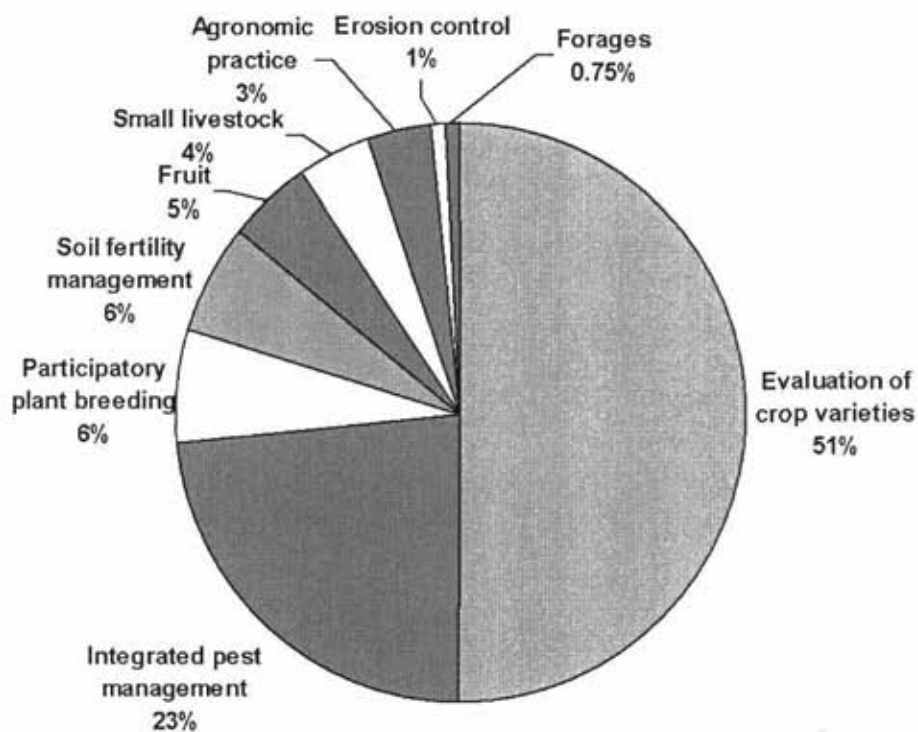


Figure 4: Research themes chosen by 250 CIAL communities in Latin America.

CIAT carried out an impact assessment of the 68 Colombian CIALs in 1998. The study found that: (1) CIALs directly resulted in more rapid technology adoption; (2) the CIAL process itself has led to people's learning useful skills and forming valuable social linkages; and (3) CIAL communities had experienced improvements in welfare. These welfare improvements came about partly by people starting agroenterprises based on the results of the experiments and the new skills and linkages they had developed. For example, some CIALs have started to produce commercially the seed of the best crops identified in their trials. Another source of welfare improvement has been that people in CIAL communities have been encouraged by the experimentation to try more new crops, and as a result have more crops and more varieties in their fields than farmers in similar villages without CIALs. This diversity enables villages with CIALs to cope better with risk. Moreover, the speed of technology adoption was faster in villages with CIALs, and the poorest strata of farmers were just as likely to adopt as the richer strata. Hence CIALs help communities benefit more quickly from improved varieties, whether developed by the formal research sector or the farmers themselves. The study also suggests that CIALs may improve food security because farmers in villages with CIALs reported fewer "hungry months" of seasonal food shortage.

An important impact of CIALs has been the inclusion of women in local research. As of 2003, nearly 60% of the committees have women members, and their participation has meant that factors critical to whether a community accepts a new technology such as cooking time and taste are included in farmers' evaluations. Women have been able to set up their own CIALs—one eighth of the CIALs are women only—and carry out research on topics of concern to women such as family nutrition. Women have also been able to benefit financially from CIAL research and in this way boost family incomes.

Another impact of CIALs has been on formal-sector research agendas. In Ecuador, for example, the national research and extension agency INIAP has worked with CIALs since 1996 and is now supporting 19 CIALs in one of its five regions. INIAP staff has learned that resource-poor farmers want to diversify their crops, and as a result INIAP is now putting less emphasis on potatoes and more on the crops that farmers are interested in such as the indigenous quinoa (*Chenopodium quinoa*), beans and *chocho*, a fodder legume (*Lupinus mutabilis*). Another effect is that the staff working with the CIALs is motivated by the good relationships they have developed with the communities through the CIAL process.

Although CIALs are influencing the research agenda of INIAP in Ecuador, this is the exception rather than the rule. In general, CIALs are not as well linked to formal-sector research as originally hoped for, and more work needs to be done in understanding why this is and how linkages can be strengthened.

The general lack of formal linkages to research and extension organizations has meant that the financial sustainability of CIALs is an issue. In part this is simply the challenge faced by all community-based organizations as state support for agricultural research and extension withers away. CIALs have developed a large range of mechanisms for replenishing their operating fund; however, these local initiatives probably need to be matched by a larger scale source of financial investment if they are to be sustained. Twelve years of experience working with CIALs has shown that the main success factor is that the CIALs themselves and their host communities stick to the following basic principles:

- Relationships between the CIAL, the community and external actors are founded on mutual respect and accountability and shared decision-making.
- Partners in the research process share the risks of research.
- Research is conducted by comparing alternatives systematically.

Knowledge is based on building experience and learning by doing.
Research products belong to the community.

Another key success factor is adequate training of CIAL members in the participatory research process. In addition, Humphries et al. (2000) found that CIALs have been found to be more successful in communities where social capital is already high.

Sustainability and replicability

CIALs are not static entities. When the first research cycle is finished some CIALs will begin another cycle to investigate a new problem or opportunity, while others will cease research and may start to commercialize some aspect of the new technologies they have tested. For example, one CIAL in Cauca, Colombia, identified a high-yielding common bean variety, then in the following seven years produced 230 t of seed before the variety became susceptible to anthracnose (a fungus). The CIAL has now begun a second research cycle to look for new varieties of beans, including, for the first time, climbing types. Whether CIALs continue or not, the process permanently improves the capacity within that community to search for new solutions and to experiment. Actively seeking out solutions, experimenting and setting up agroenterprises are all key for the sustainability of rural communities in the current global context of climate change and more open markets.

One of the ideas when the CIALs were originally founded was that the committees would act as a feedback mechanism to National Agricultural Research and Extension systems (NARES). Since then, funding cuts has seriously weakened the NARES in Latin America. Nevertheless, the pendulum may well be swinging back as a new awareness has occurred of the role of the public sector in funding, but not necessarily delivering, non formal agricultural extension (Rivera, 2003). Experience with mature CIALs has shown that they can expand the reach of research and extension services to poor, remote client groups at a low cost. CIALs may be well placed to benefit from more public-sector funding to NARES. Indeed, evidence from Bolivia, Ecuador and Colombia shows that “mainstreaming” of CIALs is happening. Bolivia has recently reorganized its NARES. Rural municipalities are required by law to include farmers’ perspectives in municipal development plans, and the CIALs are proving a useful mechanism to bring this about. In Ecuador INIAP has recently reorganized to work on organic agriculture using participatory methods. INIAP has realized that research and extension that does not take farmers’ needs and experiences into account can be “like throwing money in the river”;³⁹ and participatory approaches, in particular CIALs, are necessary to maximize impact with the limited resources at INIAP’s disposal.

In Colombia CORPOICA, the national research program, started working with the methodology in 1996. CORPOICA has set up 46 CIALs in 7 provinces in Colombia, and as of 2001 was working with 30. A case study that looked at the institutionalization processes found that while the methodology receives official support within CORPOICA, the institutionalization process is being hampered by a widely held view that the CIAL methodology is an extension tool and not useful to scientific research (Mentor, 2002). Nevertheless, CIAL methodology has gained ground in CORPOICA among the scientists who have been involved firsthand.

Another mechanism for ensuring CIAL sustainability has been the setting up of so-called “second-order organizations.” In Colombia, the CIALs in Cauca formed CORFOCIAL in 1995 as an umbrella association to protect and promote their interests. CORFOCIAL is funded from the interest on an endowment provided by an anonymous benefactor and

³⁹ A direct quote from a senior INIAP staff member.

has a staff of three paraprofessionals. It supports the CIAL process by providing training, helping in the formulation of funding proposals, facilitating visits to research organizations or to other CIALS, promoting the exchange of seeds and other products among CIALs, and organizing an annual meeting of its members. In Honduras the IPCA project⁴⁰ supported the formation of a federation of CIALs in 1998. The organization is called ASOCIAL and like CORFOCIAL is financed by an endowment fund. ASOCIAL carries out functions similar to CORFOCIAL. In addition, however, both individual CIALs and ASOCIAL provide savings and microcredit schemes to their members. Another difference in Honduras is that the annual CIAL meeting is regularly attended by researchers from the national agricultural programs making it likely that CIAL and formal-sector research in Honduras will become better integrated in the future (Humphries et al., 2000).

Lessons learned

One of the strengths of both CORFOCIAL and ASOCIAL is that they are independent and thus able to put the interests of their members first. The CIAL members of these two organizations have played an invaluable role in showing the potential of the methodology. However, in order to mainstream the approach further, more CIALs will have to be established in existing organizations, groups or agroenterprises, with the associated risk that the CIAL methodology be compromised. Experience shows that if CIALs are established as part of a NARES, then the NARES staff must commit to the principle that a CIAL primarily serves the community it belongs to and not the NARES adaptive research or extension interest. NARES staff must also commit to regular contact, respect farmer research, be accountable and share decision-making.

Based on the CORPOICA case study, Mentor (2001) came up with the following recommendations for successful institutionalization of the CIAL approach:

- Identify natural allies—build a support base before attempting to convince skeptics.**
- Use existing information on successes to create a demand for training.**
- Use appropriate media for different audiences to build awareness of results.**
- Give key stakeholders a role in deciding how to work with CIALs.**
- Implement report-back and participatory evaluation at all levels to enhance institutional learning.**
- Focus on learning from the process of working with CIALs as well as on the results.**
- Gradually reduce the amount of time researchers dedicate to working with any one group of CIALs.**
- Network experienced people and those who are just beginning CIALs to support expansion of the process and exchange ideas about adaptations of the approach.**

Another key lesson learned is that while it is important to stick to the basic CIAL principles, which are listed in the next section, it is also important to encourage local adaptations. Some of the adaptations that have proved successful are listed below.

Where short-term food security is a priority, begin by evaluating treatments in researchers' trials and subsequently share risk in more uncertain forms of farmer-run experimentation (Ecuador, East Africa).

Run a collective production plot using proven technologies, testing risky technologies in the CIALs small experimental plots. The collective production helps compensate committee members for their time and helps increase the petty cash fund (Honduras, Colombia).

⁴⁰ Funded by the International Development Research Centre (IRDC), Ottawa, Canada.

- Test and monitor innovations on farms without establishing formal experiments, especially useful with livestock or natural resource management practices (East Africa, Southeast Asia).
- Elect a large committee: in Northeast Brazil large committees sustained CIALs through periods of seasonal migration as those returning or remaining replaced migrant members. In Honduras, large committees made the human capital benefits accessible to a broader cross-section of the client group.
- Create a petty cash fund by providing the CIAL with experimental inputs in kind and then use profits from trials to fund the committee's activities. This enabled CIALs in Bolivia and Colombia to increase their petty cash fund.
- Form a CIAL to provide R&D on new products or processes for new or existing small agroenterprises.
- Run the petty cash fund as a revolving credit fund or as a small venture capital fund that makes loans for equipment that is rented out to the client group.

Experiences have shown that CIALs develop along one of two paths: they either continue to work as a volunteer research service on behalf of their communities or privatize the results of their research in an agroenterprise. Regular meetings in which the CIAL reports back to their community are important to ensure that they remain in contact with the community and follow along the first path. Nevertheless, if the CIAL does set up an agroenterprise then this can also bring benefits to the community and beyond through, for example, providing seed of new and proven varieties or crops. Indeed, one of the findings has been that the CIAL method is actually a very good way of initiating agroenterprise development, and CIAT is currently including market surveys in the CIAL method as a way of facilitating the process.

Finally, CIALs have proven themselves to be complementary to farmer field schools (FFS). FFS can build agroecological knowledge to make CIAL research more meaningful; e.g., when a community wants to experiment on different control methods of the white grub (*Diloboderus abderus*), a pest of potatoes. CIALs can generate locally adapted technology options to strengthen FFS (Braun et al., 2001).

Guidelines for replicating CIALs

Many features of the CIAL process such as the sponsoring organization, who facilitates, the size of the committee, the type of experimentation and the size of the petty cash fund can vary greatly, provided that sponsors, trainers, client groups, committee members and facilitators understand and adhere to these basic principles:

- Support CIALs to help poor farmers manage risky agricultural innovations, building on local experience. This means avoiding paternalistic protectiveness and supporting farmers in learning how to innovate over and above demonstrating technological "fixes."
- Ensure that the client group monitors and evaluates their committee and the facilitator through regular feedback. CIALs must share knowledge about their process and its results to ensure that research products belong to the wider community, not just to the committee members or the sponsor.
- Expand and rotate committee membership over time.
- Nest experimentation in social projects with short-term returns to sustain commitment in very poor, risk-adverse client groups.
- Encourage neighboring CIALs to visit or get together to reduce the costs of visiting geographically dispersed CIALs.
- Minimize costs of visiting CIALs by planning locations for their establishment; e.g., in Kenya and Colombia the national programs have located committees in target

agroecological zones, easily reachable from an experiment station or municipal extension office.

Train experienced farmers with prior experience in a CIAL as facilitators to reduce costs of facilitation, especially in the case of large-scale implementation.

Develop capacity of CIALs to organize their own regional meetings and exchange results. Promote attendance of scientists and key R&D decision-makers at CIAL meetings to ensure their support for CIALs.

Ensure that CIALs are making decisions about what is acceptable by ensuring that both they and their client group own and are responsible for experimental inputs (i.e., the CIAL petty cash fund).

People interested in learning more about CIALs should visit the IPRA website (<http://www.ciat.cgiar.org/ipra/ing/index.htm>), where it is possible to download a book on CIALs (Investing in Farmers as Researchers) and 13 handbooks that deal with the different stages involved in establishing CIALs (http://www.ciat.cgiar.org/ipra/ing/cial_primers.htm). Details of a training of trainers module, available on CD, is given in the Appendix. Further information on CIALs, including a training of trainers module on CD, is available from Carlos Arturo Quirós (c.quirós@cgiar.org).

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Highlight

A participatory procedure applied to selecting and developing forages with farmers (PPSF), developed

Abstract

Although forages play an important role in smallholder production systems, conventional approaches to technology development for forages particularly legumes have not generally resulted in significant levels of adoption in Latin America and the Caribbean, Asia and Africa. Various factors have been identified that impede forage adoption directly or indirectly: (a) the unavailability of locally produced seed, (b) the lack of credit facilities for purchasing inputs such as seed, fertilizer and fencing, (c) distorted pricing policies, which do not guarantee economic returns to farmers, (d) poor infrastructure, which disrupts delivery of inputs and removal of outputs, (e) lack of adequate markets for livestock products, and (f) low levels of farmer participation in forage development. The need for developing participatory procedures that actively involve farmers in the research and scaling-up processes is evident. According to them, there is no doubt that the participatory procedure for selecting forages (PPSF) was successful in selecting and developing with farmers, forages suitable for smallholder production systems in Honduras, Nicaragua and Costa Rica. Technicians and scientists in similar biophysical and socioeconomic environments can use the methodology and information generated to design and select novel forage technologies. Moreover, it was possible to strengthen linkages among farming communities and technicians, development workers and researchers in the aforementioned countries, increasing mutual knowledge and benefits. The PPSF gave a sounder understanding of farmers' perceptions of their problems and opportunities, contributing toward building a stronger bridge between farmers' communities and national research institutes.

Introduction

Farmers usually employ more than one technology to address constraints and opportunities on their farms and in the market environment. These components are observed, compared and evaluated before being accepted or rejected. Farmers' decisions are based on criteria obtained from their own experience; in other words, this process can be described as farmers' research at the field level. Criteria can be defined as a basis for judging and making decisions on technology options (Guerrero et al., 1993).

The research process carried out in experiment stations is also based on criteria, but the emphasis is on institutional and scientific objectives. Although this process has objectives such as improving the level of farmers' well-being and poverty alleviation, the technological components generated are not generally adopted by farmers because the technologies do not function in their fields (i.e., failure of technology) or do not respond to opportunities and constraints under farmers' conditions (i.e., not adapted) (Quirós et al., 1991). On the other hand, there have been cases where technological components rejected by scientists have given good results in the farmers' fields (Ashby, 1990). These

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observations reflect the fact that farmers' and scientists' criteria for selecting technology options are frequently different.

Despite the fact that forages play an important role in smallholder production systems, conventional approaches to technology development for forages— particularly legumes have not generally resulted in significant levels of adoption in Latin America and the Caribbean, Asia and Africa (Horne et al., 1999, Peters et al., 2001). Various factors have been identified that impede forage adoption directly or indirectly: (a) the unavailability of locally produced seed (seed in general available to farmers), (b) the lack of credit facilities for purchasing inputs such as seed, fertilizer and fencing, (c) distorted pricing policies, which do not guarantee economic returns to farmers, (d) poor infrastructure, which disrupts delivery of inputs and removal of outputs, (e) lack of adequate markets for livestock products, and (f) low levels of farmer participation in forage development (Thomas and Sumberg, 1995; Peters et al., 2001, 2003; Sumberg, 2002). Sumberg (2002) emphasizes the fact that agroclimatic, economic, socioeconomic and cultural conditions define the context of technology design and development and should, therefore, be fully integrated into the process of design specification.

The need for developing participatory procedures that actively involve farmers in the research and scaling-up processes is evident (Braun et al., 1999). This paper addresses this constraint by developing a participatory procedure applied to forage selection (PPSF), developed for conditions in Latin America and the Caribbean.

Understanding farmers' perceptions (criteria) about technological components has been successful in terms of attaining better opportunities for adaptation and adoption of forage technologies. Moreover, it has been possible to strengthen the linkages between farming communities and scientists using this strategy (Horne, et al., 1999).

Better understanding will emerge as to how each partner can take the initiative at different stages of the forage selection and adoption process according to their respective skills, experience and available resources. Utilizing these experiences, PPSF builds on the farmers' unique capacity to articulate precise preferences and to match varietal traits with specific environmental and socioeconomic niches. Finally, iterative feedback loops among all the actors will lead to mutual benefits.

Objectives

This paper describes a sequential procedure for implementing the participatory development and selection of forages, which is widely applicable and allows the analysis of quantitative data. The aim is to identify ideotypes requested by farmers as a basis for efforts to make these available to them, as well as to other farmers. The latter process of scaling up will be described elsewhere. The final goal is to identify and scale forage technologies, offering solutions to farmers' constraints and opportunities, integrating on-station and on-farm research with farmer participation.

This work capitalizes on earlier work with cassava, maize and beans, which resulted in a procedure to analyze data obtained in participatory evaluations and serve as an initial framework for developing a technology specific to forages (Hernández, 2000). Forages differ considerably from other crops as germplasm ranges from annual to perennial materials and forages have other multiple functions in the system (Humphreys 1994; Schultze-Kraft and Peters, 1997; Peters et al., 2001).

This paper describes this procedure and identifies strengths and limitations of the same.

Methods

The following research questions will be addressed in this study:

Is it possible to develop a participatory procedure in order to identify farmers' selection criteria to be applied in forage technologies?

Can information derived from this participatory procedure be analyzed and incorporated into the traditional research process?

Participatory procedures

Figure 1 summarizes the suggested sequential participatory procedure, focusing on the identification, analysis and synthesis of criteria and explanations obtained in interactions with farmers. The procedure was developed in an iterative process of training, validation and feedback among farmers, technicians and scientists working with NARIs, NGOs, development projects, ARIs and CIAT in Honduras, Nicaragua and Costa Rica. The forage options used were selected on the basis of earlier on-station and on-farm work carried out by CIAT and its collaborators in Latin America and the Caribbean.

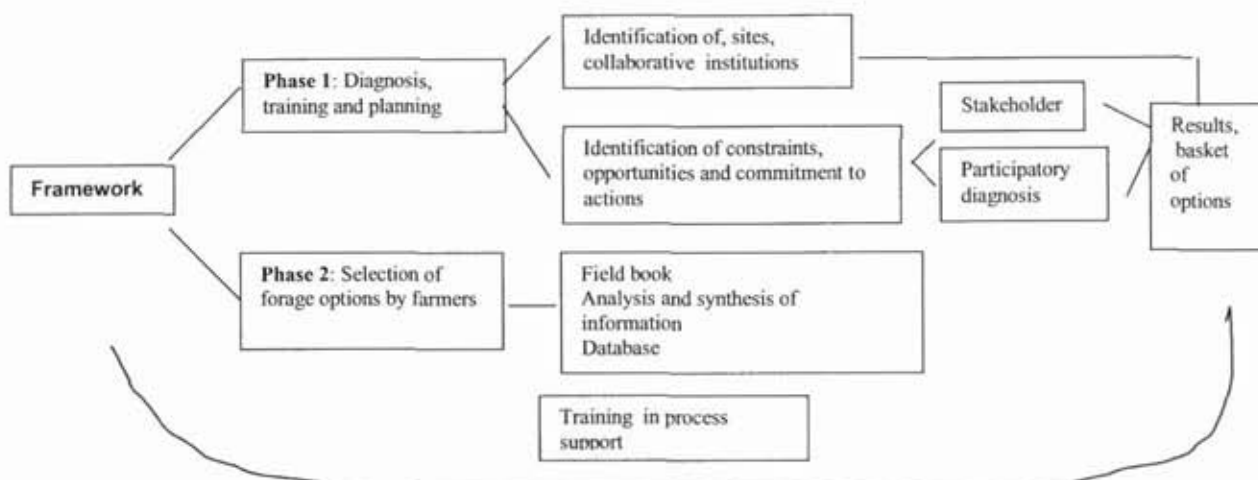


Figure 1. Description of the procedure and results.

The procedure consists of two phases thus far:

Diagnosis, training and planning. Identification of institutional collaborators and sites and exposing farmers (and technicians) to a range of forage options. This phase focuses on diagnosis, planning and training and the supply side of technologies; work with farmers is mostly consultative

Selection of forage solutions by farmers and development of a field book. In this phase forage options are selected; and descriptors, criteria, reasons, explanations and ideotypes obtained. Results are analyzed, systematized and generalized conclusions, drawn. Work with farmers is consultative and collaborative.

1. Phase 1

Identification of institutional collaborators and sites. When selecting institutional collaborators, emphasis is placed on including diverse R&D institutions, working at different scales, from locally to nationally and internationally. Such diversity will not only allow the inclusion of different experiences and views, but also capitalize on the strength of each partner. An essential guiding principle and selection criterion is the interest in doing participatory work. Once collaborators are identified, experiences in PPSF and PME are assessed, and a corresponding training strategy, including training courses and follow-up workshops, is developed. The training process is an integral part of procedure development, particularly in the follow-up workshops, where approaches and methods employed and developed are validated and revised.

Identification of constraints, opportunities and commitment to actions

Stakeholder analysis. Identifies interest groups at the watershed and community levels, differentiating age, gender, and experience (Ravnborg et al., 1997). Although in our case the initial focus was on livestock producers, the use of forages for soil fertility maintenance and soil conservation was included. Livestock, crop and mixed farmers participated. Focus groups included small- and medium-sized farmers although larger farmers sometimes benefited through contacts with these groups. It was also made clear to farmers and collaborators that there were no monetary benefits as part of the collaboration

and that the immediate benefit was the access to improved technological options selected by farmers (most not yet available commercially). It was also pointed out to the farmers that success would depend on their active participation.

Participatory diagnosis. Restricted to agriculture, to complement the stakeholder analysis. The community identifies and prioritizes the main problems and opportunities for agriculture in their environment. Farmers look for research actions in order to find technologies to solve their field problems. Participatory diagnosis is a dynamic process done by groups of farmers in order to identify problems and possibilities of solutions. Farmers take decisions and actions as a commitment for them in a participatory diagnosis process (Ashby et, 1992).

Selection of forage options. Different tools are used to evaluate forage options with farmers. Which tool to use initially depends on the stage in the participatory process, farmers' risk averseness in response to available resources and culture, and their experience with forages. Some approaches can be handled simultaneously.

A range of forage options including grasses, herbaceous and shrub legumes were used as a basket of options. While introduced options are common across sites, in each location the currently used forager were included as controls.

In later stages complementary options (e.g., *Brachiaria* hybrids and cowpeas), identified on the basis of farmers' preferences, constraints and opportunities were included in the evaluation.

Nursery plots. This tool can be used for first exposure of farmers to new forage options. Nursery plots are small areas with a multitude of forage options where farmers are exposed to a breadth of potential technologies addressing constraints and opportunities. Farmers give feedback on the utility and deficiencies of forage technologies and can select the most promising options for their production environment. There is limited risk as plots are small and the farmers' input of resources is minor. The process is mostly consultative, with the farmers providing land for the nursery plots and investment of time in participatory evaluations.

To assess the forage options, preference ranking in an open-evaluation environment is employed (Guerrero et al., 1993). Farmers rank technology options according to their objectives and give feedback, defining specific reasons for selection. The information provided by farmers in the ranking/open evaluation interviews is based on (a) criteria, (b) reasons and (c) scoring the criteria. Farmers' comments give insights into what they "see," what is significant and what is not, from his/her viewpoint. Wherever possible, links between farmers' explanations and technological characteristics will be explored. Participatory evaluations used in Latin America frequently use scales from good to poor. Probabilities of accepting or refusing technologies can be drawn from their scores/rankings (Hernandez, 2000). When starting in a new environment, the set of criteria, reasons and explanations is relatively ample; moreover, terminology varies among farmer groups and individuals. The development of a glossary of terminologies with technical explanations, analysis and stratification of results leads to a reduced set of descriptors for scaling up the approach in similar conditions (see below). Hence the process of obtaining a reduced set of wider applicable descriptors is crucial in reaching a maximum number of farmers under conditions of limited capital and human resources, biophysical and socioeconomic environments and cultural preferences.

Information at this stage is fed back to the scientists to focus and orient the development of novel forage options.

Demonstration plots. To assist the process of farmer selection, it is often beneficial to combine the nursery plots with larger scale demonstration plots of “best-bet forage options” (i.e., with a high technological confidence level) to observe their potential use at the farm level (e.g., soil conservation and animal production evaluation). While farmers give feedback and can select technologies from such demonstration plots, farmers can adapt the technologies according to their own demands. Given that this scale involves a relatively high risk, scientists and technicians assume this risk, managing the trials during the phase of introducing technologies that have not been tested previously in the area.

Expansion plots. Once farmers have identified the suitability of technology options, they are likely to expand the area dedicated to these new options. Such plots can then become additional demonstration plots, which may offer a “real life” comparison for other farmers in similar biophysical and socioeconomic environments. The management of such plots is farmer led. Cross visits to and farmer-to-farmer interaction at such demonstration plots are facilitated.

2. Phase 2

Selection of forage solutions by farmers

Test plots. Utilizing their own criteria, farmers select one or a limited number of technologies for testing on their farms in bigger areas. In Central America an area of 200-400 m² has been found useful for this testing, but the size may vary according to specific production environments in other locations. Large livestock production is not yet possible to measure in such plots: however the effect of livestock on plants and the acceptance of animals can be assessed. Initial seed/planting material is provided to farmers, but with the clear indication that for further expansion, they need to produce or purchase their own planting materials. Hence this is also the stage where linkages to seed producers and formation of artisan seed production are facilitated. The test plots can serve as an initial basis for multiplication of planting material. The management and risk of the test plots is the responsibility of farmers; however they receive support from technicians and researchers.

Based on their experiences, farmers will or will not expand and adapt forage options on their farms. As part of monitoring and evaluation criteria, reasons and explanations will be further refined. Feed back and analysis on these processes is crucial for directing future on-farm and on-station research.

Field book. This is used to analyze, systematize, stratify and validate results from the participatory and complementary agronomic evaluations. It includes the glossary of the terminology and a multivariate analysis of preference ranking, criteria, reasons, explanations and rating. The product is a further refinement and prioritization of descriptors and a definition of ideotypes for farmers in similar environments. Such information is highly useful to direct further on-station germplasm/breeding research as well as to enhance scaling into other areas.

Process support: Training

The incorporation of training in the participatory procedure is essential for the success of the approach. There are training components specific to institutional collaborators and to farmer collaborators. The first step is training institutional collaborators in participatory research tools and philosophy, forage technologies and monitoring and evaluation tools (which comprise both participatory and 'traditional' methods). This training commences once the collaborators have been identified and a work program has been agreed upon. In general training includes an initial, mostly theoretical training course, followed up by accompanied learning-by-doing during the research and diffusion process, with the greatest intensity during the first two years. The follow-up concentrates on the practical utilization of the tools based on a learning-by-doing approach, which also feeds back to improve the participatory procedure. Other training needs among institutional collaborators are identified during the research process and are addressed by the best qualified of the R&D partners or, if necessary, sourced outside. Training materials include manuals such as an instructional unit on the participatory procedure (Hernandez et al., in prep.), forage technology (Argel et al., 2002 a,b; Peters et al., 2003), monitoring and evaluation database tools (Franco et al., in prep.), and methods for facilitating artisan seed production (Cruz et al., 2003). The aim of this training is not only to facilitate the R&D process per se but also to emphasize the empowerment of farmers and strengthening of all institutional research collaborators involved. It is important to acknowledge that the learning process is multidirectional (i.e., everybody learns from everybody) as well as iterative.

Results – Phase 1

Identification of institutional collaborators and sites

Identification of constraints, opportunities and commitment to actions

Stakeholder analysis and participatory diagnosis. Stakeholder analysis and participatory diagnoses were carried out in the communities of Yorito, Sulaco and Victoria in Honduras; San Dionisio in Nicaragua; and El Puriscal in Costa Rica (CIAT 2000, 2001) .

Livestock farmers as well as crop and mixed farmers were included although the focus is on smallholder livestock farmers. Although women and a wide age range (from approx 18 to 80 yr) participated in the original diagnoses, future work showed that in terms of livestock owners they formed a minority, not statistically significant for separate analysis.

Participatory diagnosis. In the context of participatory development and selection of forages, the diagnosis was employed, not only to define demands and niches for forages and availability of potential options, but also to identify highly interested farmer groups and individuals with a high likelihood of benefiting from and hence maintaining the collaboration. The selected group was then given the responsibility of defining sites for the initial nursery plots, offering a basket of forage options.

Selection of forages by farmers

Combined analysis including all forage technologies offered to farmers

Frequency analysis. Based on data from Honduras, a cross tabulation of frequencies with all forage technologies included (i.e., grasses, shrubs, herbaceous legumes and green manures) was computed. Results indicate that plant color was the

most important criterion in the farmers' assessment. Across seasons this parameter was given more importance in the dry season as an indicator of the ability of the plants to stay green and retain their leaves. Plant growth was the next most important criterion, followed by cover, leafiness, competitiveness and production. In contrast to color, all these parameters had a greater importance in the wet season.

Color was the most important criterion in all forage technologies. However, growth, especially in the establishment phase, was a more important criterion in grasses and shrub legumes; while cover was more important for herbaceous legumes and cover crops. Equally important for herbaceous legumes and cover crops were competitiveness, growth, leafiness and ability to function as green manure. For shrub legumes, possible use as firewood was another important criterion.

In conclusion, farmers selected forages based mainly on drought tolerance, ease/success of establishment and yield. Drought tolerance was the most important criterion, indicating the demand and potential for adoption of dry season forage species.

Principal components analysis. Criteria were also analyzed using Principal Components Analysis (PCA). In the global analysis across technologies for the wet season, the first 3 PCs (principal components) explained 64% of the variation, which is a high percentage when analyzing participatory work.

The wet season is defined by criteria for establishment and stability/ persistence:

The analysis of dry season data across forage technologies shows a similar level of confidence, with the first three PCs explaining 66% of the variation:

In the dry season fewer criteria are related to the selection of forage technologies by farmers, possibly as a reflection of the major importance of few parameters, responding to particular constraints for farmers at that time of the year.

Conclusions

There is no doubt that the PPSF was successful in selecting and developing with farmers, forages suitable to smallholder production systems in Honduras, Nicaragua and Costa Rica. Technicians and scientists in similar biophysical and socioeconomic environments can use the methodology and information generated to design and select novel forage technologies. Moreover, it was possible to strengthen linkages among farming communities and technicians, development workers and researchers in the aforementioned countries, increasing mutual knowledge and benefits. The participatory procedure developed gave a sounder understanding of farmers' perceptions of their problems and opportunities, contributing to building a stronger bridge between farmers' communities and national research institutes.

All participants-farmers, technicians and researchers-through the implementation of the participatory procedure gained increasing trust and knowledge. Farmers gained knowledge on superior forage germplasm and adapted and adopted selected options, technicians/scientists obtained useful insights to develop and drive design of new technologies design responding to farmers' conditions and expectations. Farmers adopting forages increased the capacity to take more risk by harvesting the benefits of technology adoption. More confidence was gained as forage based options adapted to their farming systems were identified and through the open interaction with technicians and /researchers. Many farmers are increasing areas of selected forages options. This

environment of trust is anticipated to facilitate future research on more complex technologies as for example soil fertility improvement and evaluation of value added forages (i.e. hays, silages, leaf meals, forage-based concentrates).

The participatory procedure involved a series of steps that could be easily followed with anticipated outcomes. Thus, it was easy for technicians and scientists to adopt the participatory procedure, and they could obtain outcomes such as criteria, qualifications and reasons from farmers relatively rapid. The participatory procedure included careful research planning and the definition and supply of forage options appropriate to the vulnerable environments of the Central American hillsides. Diverse social actors such as technicians, researchers and interest groups were identified and their roles defined in a collaborative and integrative approach. The inclusion of producers in all processes as the design of research, diagnosis and the evaluation of forage options (supply) led to the selection of appropriate forages by farmers in a broad range of farming systems. Moreover, an understanding of farmers' perceptions (criteria) about forages options was acquired, focusing further research needs and allowing a higher likelihood of adaptation and adoption of forage technologies.

The coupling of a rapid participatory diagnosis with selection of farmers and farmer groups and complemented by secondary background information was efficient in focusing and initiating the research and development interaction and rapidly identifying interested farmer collaborators, leading to a high probability of technology adoption. The rapid procedure focuses initially on technologies where a good understanding of suitability of technology options exists but is limited when addressing highly complex technologies and an in-depth understanding of learning processes is needed. However the technologies supplied combined with the procedure may prove a good entry point for other, often more complex technologies as the rapid intervention with tangible results maintains interest and builds trust. The procedure is widely applicable, scalable and in this respect has advantages over many other methods in directing strategic research on identification of germplasm options. The procedure is well structured and can be used to analyze quantitative data with multivariate methods. As a result ideotypes based on criteria, reasons and explanations were defined. In fact, the participatory procedure developed in forages can be a suitable complement to other experiences of researches that are using participatory approach for developing forages technologies on farms. This participatory procedure offers a sequence procedure and some ways to analyze the information.

The participatory procedure is complemented by training strategies to establish a capacity on how to apply the procedure to forage technology development and selection, facilitating scaling-up of institutional capacity through the formation of strategic alliances.

Recommendations

The procedure needs further validation to define limitations for specific types of technologies and socioeconomic and biophysical environments. It is already acknowledging that the procedure needs to include small plot selection with animals at an earlier stage. This procedure could prove to be useful, not only for forage selection in Central America, but also for other contexts and technology options after appropriate validation and adaptation.

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Acknowledgments

Collaborators, farmers Finance BMZ/GTZ

Talks prepared by the SN-3 team and presented at events

Proceso de Monitoreo y Evaluación Participativa, promovido por el CIAT en los grupos de base. Presented at the meeting on Monitoring & evaluation systems, policies, programs and social and environmental projects. Santa Fe de Bogotá, CO, Nov. 7-9, 2002. **Susan Kaaria, Luis A. Hernández & Elías Claros**

La Investigación Participativa. Presented to students from the Milk Production Course and from the National University, Palmira campus. Palmira, Valle, CO, Nov. 12, 2002. **José Ignacio Roa**

Marco conceptual de Investigación Participativa y CIAL. Presented at the First meeting of projects supported by the Kellogg Foundation, Seminar for creating Training Centers, Oaxaca, Mexico, Nov. 26, 2002. **José Ignacio Roa**

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La Investigación Participativa y Comités de Investigación Agrícola Local, CIAL. Presented to the Regional Indigenous Council of Vaupés (CRIVA), CIAT, Palmira, Valle, CO, Jan. 24, 2003. **José Ignacio Roa**

Experiencias y resultados en Investigación Participativa, IP. Presented at the workshop for presenting the program to the *Promoting Changes* Project, Cochabamba, Bolivia, Jan. 31, 2003. **Carlos Arturo Quirós T.**

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Enabling rural innovation in Africa. Presented at the Centro Internacional de Agricultura Tropical (CIAT)-Africa Staff Meeting. Sept. 17, 2003. **Pascal Sanginga, Colletah Chitsike, Susan Kaaria, Rupert Best, Robert Delve**

La Investigación Participativa: Taller sobre el cultivo de algodón en la Costa Atlántica. Presented to the Colombian Corporation for Agricultural and Livestock Research (CORPOICA) Turipaná Research Center, Monteria, CO, July 25, 2003. **Luis Alfredo Hernández R**

OUTPUT 5. IMPACT OF SN-3 PROJECT ACTIVITIES DOCUMENTED

Milestones

Methodology for conducting impact assessment of PR methods on livelihoods
Impact of CIAL methodology on rural livelihoods in 4 communities with CIALs in Cauca Province
Project approved
Selection of Agro entrepreneurial CIALs accomplished
Secondary information recovery and primary information accessed

Impact Assessment of Local Agricultural Research Committees (CIALs) in Colombia

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Abstract

For the last 13 years the IPRA Project at CIAT has promoted the formation of community-based research services called Local Agricultural Research Committees (CIALs). With this study the IPRA Project seeks to evaluate the changes in the livelihoods of the farmers and their communities attributable to the CIAL methodology. The CIAL methodology was developed at CIAT with the goal of increasing the efficiency of the agricultural research and technology development system by integrating farmers better into the process. The study will assess the effectiveness of the CIAL methodology, the extent to which the problems addressed by the CIAL are relevant to the community, the costs and benefits of the CIAL to its members as well as to the community in terms of the development of appropriate technologies and who benefits from the innovations. The extent to which CIALs affect the rate and level of adoption of agricultural technologies among socially differentiated user groups and the costs associated with forming and supporting a CIAL will also be studied. It will also examine how farmer participation in the agricultural research process affects the process itself, as well as the specific communities and individuals involved. Particular attention will be paid to how CIALs as institutional innovations affect the human, social and other capital assets available to individuals and communities, and what implications these impacts have for livelihood outcomes. This study involved 13 CIALs: focus group discussions were held in all of them, and in 6 formal interviews were conducted. In addition, four rural communities without CIALs (counterfactual communities) were also surveyed.

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Introduction

Over the past decades, agricultural research has contributed to significant increases in world food production. Maintaining this productivity increases, as well as making progress on additional goals of alleviating poverty and protecting the environment, presents a major challenge to the agricultural research system. In order to maintain and extend the benefits of agricultural research, new ways of doing research may be necessary. One such method, participatory research (PR), seeks to involve the intended beneficiaries of research in the research process itself, based on the idea that user participation will lead to more efficient and effective design and targeting of technologies, thereby reducing diffusion time and helping ensure that the intended beneficiaries are reached with technologies suited to their needs.

In principle, the concept of PR has been widely accepted. Few scientists would consider doing adaptive research on agricultural or natural resource management technology development without at least some input from users. There are many types and degrees of participation, however, with very different implications for the benefits and costs of research. For example, asking farmers opinions or inviting them to visit field trials is a type of participation; however it is very different from letting farmers make decisions about what kinds of technologies will be developed or training them to carry out research themselves. Because PR methods incorporate user perspectives in the research process, it is often claimed that they orient research more towards the needs of the poor and thus result in a greater impact on poverty alleviation than conventional research. It cannot be said a priori that participatory methods make research more pro-poor because this would depend on the extent to which the needs and priorities of the poor differ from those of the non-poor, and whether or not the poor are specifically targeted in the research process.

Whether PR makes research more pro-poor is essentially an empirical question. Therefore, in order to understand the relationship between PR and poverty alleviation better, empirical evidence is needed on what impacts participatory methods have had on poverty in the context of specific projects and participatory methodologies. This project seeks to begin to fill this gap. The study builds on results from an earlier study (Hincapié, 2003) and a survey done by the IPRA Project in 1998 (Ashby & García, 2000).

Methodology

This study examines the impact of one particular method of incorporating farmer participation, which is based on the establishment of local agricultural research committees (CIALs) in rural communities. This method was developed at CIAT in the 1990s and is currently used in approximately 250 communities of several Latin American countries. The CIAL methodology is based on the establishment of a research committee with elected members. Each CIAL is supported by an agronomist or extension agent who trains the committee members in the research design (controls, replicates, systematic evaluation of results) and who visits their trials regularly to provide technical support. Support for the agronomist comes from the institution supporting the CIAL, usually an NGO, the national research or extension service, or some other institution involved in technology development and transfer. Costs of experimentation are covered by outside funds; however farmers are not paid for their participation or time. Research problems and priorities are set at the level of the community (by vote), but the experimentation is done by the CIAL on behalf of the community. Community members are able to visit the trials all along, and results of experiments are disseminated at the level of the community. If a series of experiments identifies

a promising technology or practice, the CIAL will officially recommend it. In Cauca Province, men and women farmers have formed 39 CIALs over the last 13 years. A second-order association Corporation for the Development of the CIALs (CORFOCIAL) –While the IPRA Project at CIAT provides technical backstopping.

Study objectives

Assess the effectiveness of the CIAL methodology
 Assess the costs and benefits of the CIAL to its members as well as the members of the community
 Use the results of this impact study actively for institutional learning and change.

Research questions

How effective is the CIAL methodology?
 What are the benefits of being a CIAL member?
 How have the CIALs benefited their communities?
 What are the costs associated with CIALs?
 How can the results of this impact study be used for institutional learning and change?

Sampling frame

Table 1 presents the sampling frame for the entire study, which involved data collection using both individual household interviews and focus group discussions (FGDs) with 13 CIALs.

Table 1: Sampling frame for the study.

	CIAL Level		Community Level	
	Active CIALs	Inactive CIALs	With CIALs	Without CIALs (Counterfactual)
Focus group discussions	13 CIALs	4 CIALs		
Individual household questionnaires	Four CIAL members from each of 13 CIALs		Household-level interviews conducted in 6 communities	Household level interviews conducted in 4 communities

CIAL level

The sample was selected from all existing CIALs in Cauca that are more than 5 years old and where it is considered “safe” to travel. To ensure a representative sample, CIALs were also stratified by age and gender of membership. Thirteen CIALs in 12 communities in Cauca were selected (Table 2). At the CIAL level, individual household interviews were conducted, and FGDs were conducted at the CIAL group level. FGDs will be conducted with 13 CIALs in Cauca Province. The FGD will collect the CIAL-specific data needed for the analysis.

Table 2: CIALs included in the study: Individual surveys and FGDs.

Name of CIAL	Location	Age of CIAL	Household s in community	No. of Members		Sample Size for Survey
				Men	Women	
Asopanela	Rosas	12	30	3	1	
Betania 1	Piendamó	12	33	6	2	
La Esperanza	Caldono	7	45	4	1	
El Turco	Santander	9	25	3	1	
Carpintero	Morales	8	181	20	10	46
El Jardín	Caldono	10	38	3	1	10
Las Cruces	Silvia	6	57	3	3	15
Pescador	Caldono	13	66	5		17
San Bosco (Female)	Santander de Quilichao	5	58		9	15
San Bosco (Male)	Santander de Quilichao	12	58	3		
San Isidro (Male)	Santander de Quilichao	7	66	5		
Cinco Días (Female)	Timbio	11	205	2	13	52
El Diviso	Rosas	12	83	4	2	

Community level

In order to understand the impact of CIALs on individual members as well as on other community members, individual household interviews will be conducted in six CIAL communities and 4 communities without CIALs. In each of these communities both CIAL and non-CIAL members will be interviewed. In addition, both the male and female heads of household will be interviewed.

CIAL communities. Four of them (El Jardín, San Bosco, Tres Cruces and Cinco Días) were selected because they formed part of the study documenting the impact of the CIAL methodology (Hincapié, 2003), while the other two (Crucero de Pescador and Carpintero) had been in the impact study conducted in 1998. The information from these earlier studies formed the basis for the design of the surveys for this study.

To define the sample for individual household interviews, a 10% margin of error and a 95% level of confidence were used in a randomly stratified design, in which the rural communities constituted the subpopulations that form the strata. The distribution of the selected sample is presented in Table 3. The size of the sample for the rural communities without CIALs will be determined as was done for the rural communities with CIALs.

Non-CIAL communities. In order to control for changes in the communities attributable to the presence of CIALs, 4 counterfactual communities were also selected on the basis of not being neighbors and similarity in various characteristics (Table 4):

Table 3. Distribution of the sample selected.

CIAL Communities	No. of Households	Sample Size
El Jardin	38	8
Carpintero	182	37
Tres Cruces	57	12
Crucero de Pescador	66	14
San Bosco	58	12
Cinco Días	205	41
Total	606	124

Table 4. CIAL communities and their corresponding non-CIAL communities.

Communities with CIALs	Counterfactual Communities (without CIALs)	Location	No of Families	Sample Size
El Jardín and San Bosco	La Concepción	Santander de Quilichao	87	17
Carpintero and Cinco Días	San José	Caldono	169	31
Tres Cruces	Santiago	Silvia	108	21
Crucero de Pescador	La Chapa	Santander de Quilichao	37	7

Sociocultural characteristics: ethnicity, level of schooling and access to public services (energy, access to aqueduct, telephone and health services)

Interaction with institutions

Distance to large markets

Agroecological zone

Farming system

Research questions/hypotheses, indicators, data needs and data collection method

In order to develop a data collection strategy, we took each of the research questions and developed variables to measured and identified specific indicator to measure the variable. Table 5 presents details about each of the broad research questions, as well as indicators used to measure the impacts, and data sources. This served as the basis developing data collection and analysis methodology.

Table 5: Impact study questions/hypotheses, indicators, data needs and data collection method.

Hypothesis/Research Questions	Indicators	Data Needed	Data Collection Method		
			Survey	Focus Group	Case Study
How effective is the CIAL methodology?					
Who are the members? (Are they poor, rich, educated, innovators)	Distribution of participation in CIALs across the different gender and wealth groups	Characteristics of members: (well-being levels, educational level, gender Community criteria for selecting members	X		
Are the farmers “effective” researchers? (productivity of research outputs, responding to community needs)	Problems addressed relevant to the community (CIAL is responsive to community priorities and needs.)	Farmers ranking of appropriateness of research themes to address community problems Community diagnosis results vs. topics of CIAL experimentation	X		
	Appropriate technologies are developed	Rate of output of research (no. of research topics covered by CIAL experimentation)	X		
“Scientific rigor”; are research results improving yields, environmental issues?	“Improved” or better technologies are recommended	Characterization of recommended technologies using scientist-defined criteria (yield, resistance, soil fertility management, biodiversity, etc.)			X
Integrating local and scientific knowledge	Increased research in indigenous/local technologies	Research outputs based on indigenous/local knowledge			X
Do CIALs improve the flow of information between farmers and R&D organizations?	Enhanced capacity to demand technology and related support services	No. of visits from other communities to CIAL experiments or no. of visits by CIAL members to other communities to explain their technologies	X		
What is the role of second-order organization CORFOCIAL?		Assessment of services provided by CORFOCIAL to CIALs (from perspectives of both)		X	
What are some of the key actors in a CIAL failure?		No. of inactive CIALs and reasons		X	

Hypothesis/Research Questions	Indicators	Data Needed	Data Collection Method		
			Survey	Focus Group	Case Study
2. What are the benefits of being a CIAL member?					
What are the benefits of being a member? (human and social capital)	Enhanced leadership skills	Degree of participation/leadership in other community events	X		
	Enhanced capacity for experimentation	No. and types of new non-CIAL related experimentation other New knowledge acquired and its application to new problems	X		
	Capacity to convene and organize community meetings	No. of meetings organized or capacity to initiate and organize farmer-to-farmer exchange	X		
	Become agricultural experts in community (innovators)	Representation of the community in agricultural events. Community members' opinion about who are the agriculture leaders in village	X	X	
	Improved financial management skills	Capacity to increase CIAL fund/capacity for raising funds	X		
Do improved skills lead to benefits? What is the impact of the increased human and social capital among the members and communities?	Able to support community in addressing new challenges	Member involvement in other community development activities	X		
	Ability to formulate and present own projects based on community demand	New projects started because of CIALs		X	
	Acts as entry point for other R&D	Same as above			X
	Enhanced capacity for collective problem solving	Major community problems solved in the past 5 years and how they were solved		X	

Hypothesis/Research Questions	Indicators	Data Needed	Data Collection Method		
			Survey	Focus Group	Case Study
3. How have CIAL research outputs benefited members of their communities?					
How have their research outputs benefited their communities?	CIAL communities benefit from research outputs	Assessment of benefits of CIAL to the community at large.		X	
	Communities benefit from adoption: concrete results/changes/effects of these technologies	Increased/stabilized yields Increased food security at household level Increased income (and how it is used) Better management of farm resources	X		
Who benefits in different social groups, especially across gender and the poor?	Access of benefits to different households categories (women and the poorest)	Characterization of households adopting and benefiting from technology	X		
Spillover benefits to other communities?	Adoption of CIAL technologies in neighboring communities (spillover)	Same as above	X		
How do their marketing projects benefit the community?	Benefits from CIALs marketing projects	Types of marketing projects			X
Who has access to these benefits from marketing?	Enhanced access of benefits to different categories of households (women and the poorest)	Benefits and who has access: analysis of above broken down			X
Has methodology contributed to poverty alleviation? Who has access?	Enhanced access to benefits by women, children and the poorest households	Same as above			
4. What are the costs associated with CIALs	Effectiveness increases with maturity Reduction in the operational budget over time	Cost of creating and supporting a CIAL How much time members spend on CIAL-related activities and the value of that time (similarly other resources and their value)			

Progress to date

From June to September, 2003, the surveys were administered to a sample of 124 household heads and to a second person in each respective household (wife/husband, son/daughter), for a total population of 606 household heads from six rural communities with CIALs in Cauca Province: Crucero de Pescador, Cinco Dias, Carpintero, San Bosco, El Jardín and Tres Cruces.

Implementing the study

Ten enumerators were selected and trained (5 university students and 5 people from the study region) to conduct the household interviews. The training focused on developing communication skills and techniques for conducting the surveys and to create a local capacity for gathering information and for identifying the regional problems.

Selection and application of surveys in communities with CIALs

All surveys were conducted with the selected CIALs in the six rural communities: 124 surveys to household heads and 106 to the second person.

A format in the OMNIFORM program was developed to input the data from the surveys and the statistical analyses.

All the data from the surveys were typed into the OMNIFORM program and are ready to be analyzed.



Figure 1. Interviewing the wife of a farmer in Cauca.

Selection and application of surveys in communities without CIALs

The four non-CIAL communities were selected by grouping four CIAL communities with similar characteristics. For example, El Jardín and San Bosco; or Carpintero and Cinco Dias were grouped together as they have similar characteristics with respect to sociocultural characteristics: ethnicity, level of schooling and access to public services (energy, aqueduct, telephone and health services), interaction with institutions, distance to large markets, agroecological zone and system of agriculture. In this instance, one counterfactual community was selected for each pair. In the case of Tres Cruces and Crucero de Pescador, a counterfactual community was identified for each one because the communities were very different from each other.

The selection of counterfactual communities involved visiting the community and conducting interviews with key informants (teachers, presidents of the JACs or Communal Action Boards and the health promoters). In each community information was gathered on general characteristics and compared to communities with CIALs.

La Chapa and San José were surveyed, and the information was entered in the OMNIFORM program.

Challenges of implementing the study and solutions

The main difficulties encountered in the development of the study were related to the data gathering:

Some farmers are distrustful and do not answer the surveys honestly; thus there was incongruence in the data. Explaining the objective of the study very clearly and explaining that the data would be treated confidentially and would not be used for any other purposes except for the study addressed this problem.

Some farmers selected for the survey did not want to answer the questions unless they were given some economic remuneration. In this case, other farmers were selected at random to replace them.

The indigenous communities are reserved about their information and do not permit their members to give out information without permission from the Governing Council to which they belong. This difficulty was encountered mostly in those communities located near a reservation. In the native communities surveyed, it was necessary to speak first with the local leaders and the Governing Council to explain the purposes of the survey and request their approval for the study.

Lessons learned

Thus far the following lessons have been identified, which contribute experiences for future studies:

The training of the interviewers has resulted in good-quality information.

The revision of the surveys by each interviewer before turning them in to the coordinator meant that they had fewer errors, and the process of final revision was much quicker.

The rapid feedback by the coordinator of the group to the interviewers minimized the errors in gathering the data and made the work more efficient.

The support of the local interviewers generated more trust in the farmers, facilitating their response to the surveys.

A key factor for obtaining information on the rural communities was talking to the presidents of the JACs, the health promoters and the teachers.

To be able to interact with indigenous communities, it is necessary to approach the local authorities previously in order to facilitate the execution of the work.

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Impact study of CIALs El Jardín, Las Cruces, San Bosco (men and women), Cinco Días

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Collaborators: N. Zambrano, A. Truque, E. Claros, J. Rincon, F. Escobar

CIALs: El Jardín, San Bosco, Tres Cruces, Cinco Días

Highlights

Impact of CIAL methodology on rural livelihoods in five communities in Cauca Province
Identification of impact indicators from the perspective of rural communities

Abstract

This study examined the impact of a particular method of incorporating farmer participation, based on the establishment of local agricultural research committees (CIALs), in rural communities. The methodology used is based on the Sustainable Livelihood Approach. The aim of a livelihoods impact assessment is to gain an understanding of the significance of the project to the livelihoods of project participants and other local residents. The study found four major topics of impact: technology, which includes better planning and organization of farms, new technology and its diffusion; food security which looks at nutrition; income generation from the standpoint of agroenterprises and production projects; and social and human capital which takes a look at leadership, empowerment and gender. Some of the major challenges involve better communication channels to facilitate the flow of information from farmers' communities to second-order organization and to research centers.

Background

Over the past decades, agricultural research has contributed to significant increases in world food production. Maintaining these productivity increases, while making progress on additional goals of alleviating poverty and protecting the environment, presents a major challenge to the agricultural research system. In order to maintain and extend the benefits of agricultural research, new ways of doing research may be necessary. One such method, participatory research, seeks to involve the intended beneficiaries of research in the research process itself. The idea is that user participation will lead to more efficient and effective design and targeting of technologies, thereby reducing diffusion time, increasing adoption and helping to ensure that the intended beneficiaries are reached with technologies that are appropriate to their particular circumstances, needs and priorities.

This study examines the impact of one particular method of incorporating farmer participation, which is based on the establishment of local agricultural research committees (CIALs) in rural communities. This method, which was developed at CIAT in the 1990s, is currently in use in more than 250 communities in 8 Latin American countries. The CIAL methodology involves the establishment of a research committee with elected members. Each committee is supported by an agronomist/extension agent who trains the committee members in the research design issue (controls, replicates, systematic evaluation of results) and who visits their trials regularly to provide technical support. Support for the agronomist comes from the institution supporting the CIAL, usually an NGO, national extension service, or some other institution involved in technology development and transfer. Costs of inputs not available locally are covered by outside funds, and members are not paid for their participation or time. Research

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problems and priorities are set at the level of the community (by vote), however the selected members do experiments. Community members are able to visit the trials all along, and results of experiments are disseminated at the level of the community. If a series of experiments identifies a promising technology or practice, the CIAL will officially recommend it.

Objectives

The objective of this study is to evaluate the impact of the CIALs on poverty in rural communities. The CIAL methodology was developed at CIAT with the goal of increasing the efficiency of the agricultural research and technology development system by integrating farmers into the process. The study assesses the extent to which CIALs affect the rate and level of adoption of agricultural technologies among socially differentiated user groups. It also examines how farmer participation in the agricultural research process affects the process itself, as well as the specific communities and individuals involved. Particular attention is paid to how CIALs as institutional innovations affect the human, social and other capital assets available to individuals and communities, and the implications these impacts have for livelihood outcomes.

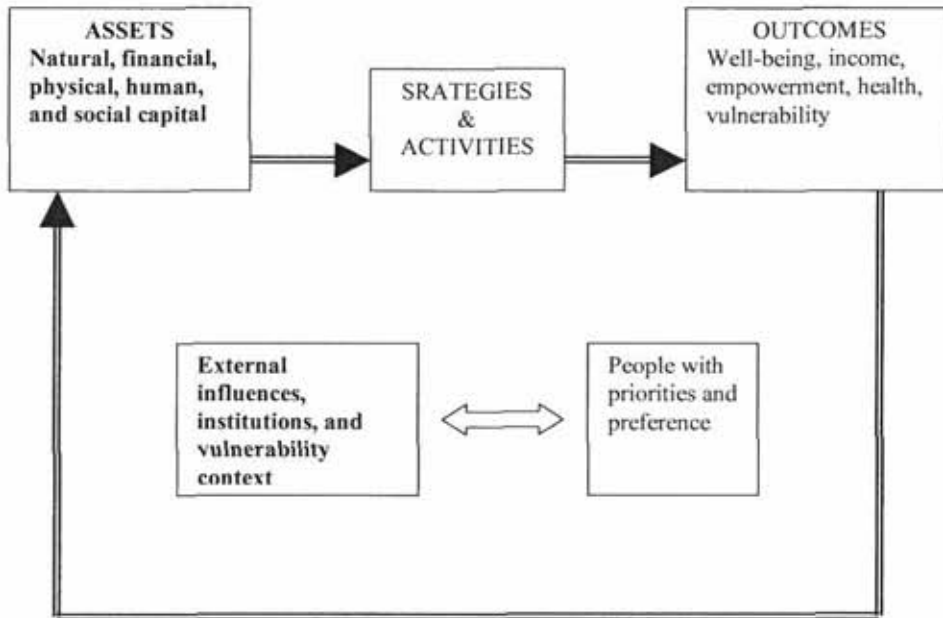
Methodology

Conceptual framework

The impact of research outputs such as technologies and methodologies goes beyond the production process and to the well-being of the people involved directly and indirectly in the project carried out in a given community; therefore, an alternative methodology to conventional impact assessment is required. The methodology is based on the Sustainable Livelihood Approach. Figure 1 diagrammatically presents the components and linkages within this Approach. The aim of a livelihoods impact assessment is to gain an understanding of the significance of the project with respect to the livelihoods of project participants and other local residents. Such an assessment is based on the premise that the project and project participants share a core aim: the enhancement of local people's livelihoods.

It is important to note that a benefit inherent in this methodology is that as it is the community that identifies problems and needs, they are in a better position to make decisions and act upon the major issues affecting them. Thus research-action becomes a motivation tool for the future development of projects by communities.

Box 1. Livelihoods framework



Study area

Five CIALs were selected: El Jardín, San Bosco (men and women CIALs), Tres Cruces, Cinco Días. Table 1 lists the CIALs, their research topics and years of experience.

Table 1. CIALs studied, their research topics and years of experience.

CIAL	Initial Diagnosis	Research Topic	Experience/ Starting Date
San Bosco (men)	Maize Potatoes	Experimentation on varietal adaptation to area	12 years 1990
San Bosco (women)	Soya Rice Barriers Beans Cassava Maize Organic fertilizer Soil conservation	Experimentation on varietal adaptation to area Soil improvement	4 years 1998
Tres Cruces (indigenous)	Maize Beans Quinoa Wheat	Experimentation on varietal adaptation to area	5 years 1997
El Jardín	Onions Beans	Experimentation on varietal adaptation to area	6 years 1996
Cinco Días (women)	Blackberries Soybeans	Experimentation on varietal adaptation to area	10 years 1992

Participatory Rural Appraisal (PRA) Tools

PRA is used here to refer to a more extended process that involves not only the collection of information but also its eventual use by the community as it plans further activities. The emphasis of PRA is often not so much on the information as it is on the process and seeking ways to involve the community in planning and decision-making.

Table 2: PRA tools and type of Information that can be collected.

Diagnostic Tool Used	Type of Information Obtained	Types of Indicator for Measuring Change
Participatory mapping	Village landmark, infrastructure and social structure Spatial land use patterns Settlement patterns Information on livelihoods and places important to livelihoods Markets Relations with other villages	Adoption of technology across village and neighbors Access to markets Change in production systems techniques Change in farm planning and organization
Vern Diagram	Existing organizations in the community and their linkages within and externally Role of external forces in the community: government and NGOs Relationship with other villages	Role of CIAL in local organizational systems
Calendars	Patterns within the community: Income, labor and consumption Seasonal agricultural calendar Forest product availability Migration patterns Livestock management	Change in food availability Change in migration patterns Change in labor intensity Gender-labor intensity Change in production Empowerment
Wealth Ranking	Levels of well-being; Access to services and assets Leadership/wealth correlation	Well-being and participation in activities Distribution of project benefits Change in access to assets Change in assets Changing composition of wealth

Results

The study found four major topics of impact: technology, food security, income generation and social and human capital.

Technology

Better planning and organization of the farm: As a result of new knowledge on the crop production management, as in the case of San Bosco, new techniques for hillside land and crop management resulted in increased production of maize, beans and cassava.

New technology and its diffusion: The recovery of an ancient crop, quinoa, in CIAL Tres Cruces has resulted in a program led by the indigenous Council to include this crop in all gardens.

Food security

The main impact in food security is the reduction in the scarcity periods of grains, beans and maize, which are the staples of most communities' diets.

When comparing the production of the four communities over time, beans and maize showed a remarkable improvement and also show a potential for further increment in production due to the research carried out by the CIALs. Production figures and the food-availability calendar support this claim. Food scarcity was reduced from 6 months to 3-4 months in the case of beans and maize in the villages of El Jardín and San Bosco. The only reason why they have not been able to close the gap is because of grain storage problems.

Beans, being one of the commonest research topic of CIALs, has come a long way from production for consumption to its present level, which allows for seed production and, to a lesser extent, income generation. The CIAL El Jardín works with beans and its production figures have gone from consumption only 5 years ago to 2500 kg/ha at present. Research on new varieties and training on crop management and seed production account for the success this CIALs research.

Maize has also shown an increment in production, and its behavior has been similar to that of beans. Most of the grain was kept to feed the family, but this increase in production also allows for seed production and to feed minor species on the farm. The CIAL San Bosco has been working with maize for around 10 years. Their production has doubled in the last five years, going from 2500 kg/ha to 5000 kg at present. Similar to El Jardín, the CIAL San Bosco has also gained knowledge on new management practices and seed production, which is a source of income generation for this group. Another source of income and a major impact for this CIAL was the acquisition of a maize milling machine, which is used by village farmers and neighbors, representing not only a source of income but also savings in time and money.

Greater maize production has also allowed producers to keep as many as 200 chickens on their farms some for their meat and others as egg producers as an alternative source of food and income.

Income generation

Most CIALs generate income from their production of beans and maize seed; however, CIAL Cinco Días has acquired bakery equipment to produce soy bread

(soybeans are the topic of research of this CIAL). A new group of soybean producers will supply the raw material for the bakery; soybeans are also sold to feed small animals.

Social and human capital

Another major impact the CIAL has had on its members is the development of leaders and empowerment of the communities where they are located. Appendix 1 shows clear areas of impact or indicators such as understanding of experimentation, social organization, leadership, empowerment, land, crop and farm management, decision-making, better planning and organization of farm, new knowledge, new technology, diffusion and income generation.

It also shows that although a CIAL may have only one research topic, impact is also produced by other technologies introduced by the CIAL. This technology may come from the technician, farmer-to-farmer, tours, the yearly CIAL meeting. It is then tried by the CIAL and is eventually adopted in the village and neighboring communities. Results from these technologies should also be included in the CIAL research records and reported to CORFOCIAL and the research entity.

Impact on livelihood goes beyond production and income generation, which are only some of the components of well-being; leadership, organization, communication, empowerment and decision-making complete the picture.

Research on maize and beans has not only had a real impact on food availability in the communities through increased production and a better knowledge of land, crop and pest management; but it has also helped improve nutrition levels in villages such as San Bosco, El Jardín and Tres Cruces, helping get closer to their objective of food security.

Other technologies introduced by the CIAL to villages (e.g., forages in El Jardín) represent an extra income for the farm in terms of cash when sold for cattle feed or in kind when exchanged for milk.

In the case of Tres Cruces, quinoa has put the CIAL at the front of a major project by the local indigenous Council to incorporate quinoa plants in their gardens. Already 80 out of 175 families have included quinoa in their diets and are also learning about its medicinal uses.

As the result of its research on soybeans, the CIAL Cinco Días has established a small bakery based on soy flour, generating income not only for the families of the members of the small business but also for a group of farmers who see the opportunity of supplying soybeans to the bakery. Training in small business management will also improve and have an impact on the livelihoods of the village by opening up new opportunities and generating employment for the village.

San Bosco is also looking at the establishment of a small business in the form of a collection centralized facility for collecting and marketing local products which would not only benefit the village but also its neighbors, and would generate employment.

The development in some communities of a do-it-yourself mentality has had a major impact on its own, considering that not long ago their conditions and self-esteem were at a very low point. One of the commonest discussions in the five CIALs visited was the preparation of proposals for local projects, which shows a vision, a plan or strategy for improving the well-being of the village.

Human capital is also another major area of impact. The CIAL is also a school for leaders, and its members often work with other organizations in the communities such as the indigenous Councils, the Communal Action Boards (JAC), water boards, etc. The community often consults CIAL members on farming issues; and the CIALs also have the responsibility of reporting research and feedback to the community, not only on their findings but also on the accounts.

Gender is an area that needs more attention. CIAL research represents extra work for women who have to carry on with their day-to-day numerous activities and find time to do CIAL work. A common attitude towards women working in CIAL is that they have nothing better to do or that it is a waste of time. This attitude means that in order to spend time away from home in the CIAL, women must work harder at home. This attitude changes as the CIAL begins to show positive results, particularly in their families. Good feedback of results to the community will improve the attitude towards women groups

Another barrier women encounter is that their husbands oppose their spending a long time away from home, and this produces conflict at home. This is less noticeable in villages where there is a CIAL already established or where there is knowledge of the CIAL work and results.

Wealth ranking

Table 3. Summary of wealth ranking characteristics by group.

	El Jardín	San Bosco	Tres Cruces	Cinco Días
Top level	Income from employment Small families Employment generation Large farm	Large farm Income from employment Better diet	Cattle Income from employment High academic level Own transport Leadership	Income from employment Large farms Inheritance Family help Very active
Intermediate level	Extra income from goods or services Seasonal labor Farm products	Own home Seasonal labor Large family Little land Farm products	Large families Single men Seasonal labor Farm products	Self-sufficient farm Single head of household Seasonal labor
Low level	Illness Old age No help	Do not own home Large family No water or electricity	Large families Single mothers Illness Widows Old age No help	No land Old age Illness No help No water or electricity

Wealth ranking in the four communities shows some characteristics common to the different levels studied: At the top level are fixed income from full-time employment by members of the family in addition to farm products, larger and already established productive farms which in some cases generate income for members of the communities. At the intermediate level, farm products, supplemented by seasonal labor, are the common characteristics that identify this group. The lower level is characterized by illness, old age, no collaboration from family relatives and lack of water and energy.

When asking the question what is necessary to move from one group to another, better management of assets and access to credit for investment are the commonest answers, followed by participation in-group activities.

Better management of assets and teamwork are areas where CIAL methodology can contribute to the progress of communities. In the future, it may be possible that second-order organizations of CIALs can facilitate access to credit for its members.

Challenges

Some of the major challenges ahead are to improve reporting of results to research centers and other organizations, the quality and relevance of research, and feedback to communities.

Better communication among CIALs, CORFOCIAL, CIAT and other R&D organizations is essential for improving the quality and relevance of research and also for validating CIAL research before these organizations. In order to obtain funding for research, it

should not be done only on the basis of interest in the communities alone but also reflect the interest of donors and R&D centers.

To a certain extent, that is what this impact evaluation methodology offers an understanding of community needs and interests in order to match donor and organization requirements. As CIAL Tres Cruces put it, "we are tired of organizations bringing in projects that solve none of our problems, and when they are gone, we are worse off than when we began...we have lots of product no one wants..."

References

Ashley, C.; Hussein, K. 2000. ODA.

Appendix 1

Table 4. Summary of impacts by CIAL

Impact	El Jardín	San Bosco (men)	San Bosco (women)	Tres Cruces	Cinco Días
Technology					
Better planning and organization of farm	New knowledge of cassava management has improved crop production.	New techniques of hillside land and crop management has permitted increased production of maize, beans and cassava.	Research on organic fertilizer has solved problem of lack of funds to fertilize land.	Reduction in maize harvest cycle from 12 to 7 mo Recovery of ancient crop (quinoa)	Diversification of crops New knowledge on crop management and preparation
New technology and diffusion	Forages used as live barriers to control erosion and exchanged for milk Increased maize production permits production of chickens. Greater bean production permits seed production. Neighboring villages adopting technology researched by CIAL	Increased maize production permits seed production. New knowledge of pest management has led to better production.	Greater maize production allows CIAL to work with laying hens (egg production)	Quinoa research led to the local indigenous Council's implementing a program of quinoa in gardens CIAL members and collaborators live in neighboring villages, facilitating adoption and diffusion of technologies.	Training of community in over 40 recipes prepared with soybeans, including milk and meat alternatives

Food security	El Jardín	San Bosco (men)	San Bosco (women)	Tres Cruces	Cinco Días
Nutrition	<p>Improved quality of crops, particularly beans, shift from local variety to an improved variety</p> <p>Better bean and maize production has reduced food-scarcity period</p>	Better bean and maize production reduced food-security period	Better bean and maize production reduced food-security period	Research on nutrition and medicinal benefits of quinoa	Soybeans are an alternative to many products including milk and meat, which represents a savings in the purchase of these products.
Income generation					
Agro-enterprises	CIAL and community will present project for cane mill to increase panela production and generate savings in its processing.	Maize seed production	Production of feed concentrate for minor species		<p>Bakery</p> <p>New group formed to supply soybeans to bakery, generating income for producers</p>
Production projects	Bean hulling machine used by local residents, neighbors and local indigenous Council	Maize milling machine used by local residents and neighbors represents savings to farmers as they can process harvest in village.	<p>Use maize milling machine to prepare feed concentrate for animals</p> <p>Generate savings by producing fertilizer in village</p>	Production of organic fertilizers to improve soil	<p>Bakery equipment to initiate small business and purchase soybeans from local producers</p> <p>Soybean production also sold to feed smaller animals</p>

Leadership & empowerment	CIAL members role as agricultural experts in village	Local indigenous Council delegated management of farm to CIAL leader	Local indigenous Council allocated 15 ha for research and work led by CIAL	Local indigenous Council quinoa program led by CIAL	Small business will generate extra income for the community.
Gender	Gender awareness promoted by local indigenous Council motivated formation of women's group to work with soybeans.	Gender awareness, collaboration and motivation to women's CIAL	Gender awareness to change stereotype role of women Community attitude to CIAL has changed a little as they see results.	Change in family attitude regarding sharing of activities at home	Change in family attitude regarding collaboration at home when women are working with CIAL

Abstract

Many actors in the rural context offer a large cadre of training opportunities to local communities. Nevertheless, such training is not always enough to promote development due to the fact that knowledge application is not possible due to scarcity of financial resources. Local groups are in search of economic resources to carry out their projects. Some have been successful in accomplish this task. Thus it was considered important to learn from the experiences of the process of forming rural agro enterprises in 5 CIALs. The objective was to identify and analyze what aspects promote the formation of these organizations within the context of the CIAL methodology and groups, providing a vision specific to farmers interested in incorporating an entrepreneurial focus to production activities.

Problem Identification

The experience of forming rural agro enterprises (RAEs) in some community-based research services (CIALs) that have been conducting research for several years has not been assessed. This study proposed to identify and analyze the organizational and production principles and practices of five CIALs with RAEs in Cauca - Colombia. This study covers (a) the analysis of their formation, from the initial research period to the creation of the RAE, (b) the diagnosis of the organizational and production characteristics that contributes to their maintenance and (c) the identification of the possible effects of a socio-economic nature, generated in the Committees and in their communities. The study will not only report back to the communities on these experiences, but will also generate information to orient other organizations in the national and/or international setting that wish to form other RAEs in the field.

Background

Since the seventies, the methodology of participatory research has not only influenced the methods of social inquiry, but also allowed rural communities to establish priority criteria based on an informal analysis of their context. Until 1998 the CIAL methodology had contributed to the formation of 249 Committees in 8 countries of Central and South America (Ashby, 2001)

In Cauca Province, Colombia, the CIAL methodology was first developed in 1990 as a result of the direct intervention of the community and facilitators from the Participatory Research Project with Farmers (IPRA) at CIAT. The CIAL, which is created at the instigation of the community, is an organization directed by and for farmers. This structure is designed to meet the needs of the community (mostly related to food security), which are then prioritised through a participatory diagnosis that leads to the planning of the research process. Basically, farming methods and technologies that are not known locally and have not been tested in the region are compared with the traditional practice, but sometimes this is not sufficient to accomplish the desired results (Ashby, 2001). Their relative success affects the strengthening and development of the community at the local and regional levels.

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The influence or impact generated within the communities can be determined by evaluating the participatory processes of the individuals, the distribution of the benefits generated by the research, and the consolidation of the RAEs. Then the advantages, successes or failures are identified, and recommendations are made accordingly in order to enrich both the functioning of each Committee and the CIAL methodology.

Independent of the impact that the research may generate in the community, some CIALs have interacted as a result of training or experiences in neighboring communities or in the village itself with alternative production systems that give an aggregate value to the agricultural product. Thus the idea arose of forming a small-scale agro entrepreneurial system, which is influenced by the way in which the farmers are associated and organized.

In 1998 the Rural Agro enterprise Development Project at CIAT identified key factors for success based on eight RAEs in Colombia, Ecuador, Bolivia, Peru and Chile, oriented toward promoting the exportation of agricultural products. The analysis was based on the physical, social and economic environment, the business organization, analysis of the product and competitive capacity. Among the key factors identified were business-oriented leadership, a drive toward self-management, availability of support services, links to the alternative market, development of marketing strategies and business schemes with vertical integration (Lasso & Ostertag, 1998).

In 2000, part of the small business experiences of 11 CIALs (Cinco Días Mujeres, ASOPANELA, El Placer, San Bosco Hombres, San Isidro Mujeres, El Diviso, Carpintero, Pescador, El Jardin, Santa Barbara and Betania) in Cauca was documented. Analysis of the results of that study, centered on the conceptualization of successful RAEs, and on recommendations or strategies for achieving them (Roa & Lundy, 2000). At present there are 10 groups (except for the last two and including the CIAL Santa Isabel) dedicated initially to research and then to the small-scale production of maize seed, common beans and peas, organic by-products from sugarcane, and bakery products from soy products.

Research questions

Based on the foregoing issues, the study centers on the experiences of 5 CIALs with RAEs. The following framework of questions is used to determine the information requirements:

What factors motivated the formation of the RAE within the CIAL? ¿How did this process evolve? ¿What are the organizational aspects that have favored that formation?

What production and marketing factors have contributed to the permanence of these RAEs?

What have been the main constraints to the normal functioning of the RAE?

What are the effects of this process on the CIALs with RAEs, on their members and the community?

The information gathered during the study will be important for the farmers involved in CIALs, both with and without RAEs, in the planning, analysis of the production work and in the formulation of projects.

Methodology

In this research, which is explanatory in nature (i.e., why and how), social research strategies such as surveys, analysis of files, histories and case studies will be used (Yin, 1994) The research will not include experimental or quasi-experimental designs (rigid in their methodological structure), because the emphasis is on exploring the specific perspectives of the participants with respect to the CIAL experience, which are important for constructing the meaning and implications of the Committee for the community. Information related to production and marketing data of the Committee will also be gathered.

Both primary and secondary data are being gathered. The design is based on an approach that integrates qualitative, participatory and quantitative methods: The process of forming an RAE in a CIAL will be described through formal, semi-structured individual interviews, group analysis and time-line. Then the organizational and production aspects of the 5 CIALs under study will be characterized (Gottret et al., 2000) (description of producers, the production process, the product and its marketing, among others), using participatory techniques (flowchart of activities) and formal surveys and semi structured interviews.

The analysis of the information will not only be done in the final stage of the study. It will also be a key factor during the execution of the study, for which successive activities of ranking, analysis and recording of information will be done to revise the results, identify gaps and check the reliability of the same.

Results

Selection of CIALs with RAEs

The research hypothesis is that there are organizational and production principles and practices that are key to success in the processes of forming RAEs in the CIALs and their sustainability over time. To test this hypothesis, the study sought to document the participatory and interactive experiences of farmer members of 5 CIALs that decided to form an RAE.

Rural agroindustry is an "activity that permits increasing the value of the production of the rural economies through the execution of post harvest processes (e.g., selection, washing, classification, storage, conservation, transformation, packing, transportation and marketing) in products from agro-silvo-pastoral systems, fisheries and fish ponds" (Riveros, 1998). This concept makes it possible to differentiate those nonagricultural production activities from others that could easily be confused. Therefore, the following CIALs situated in Cauca were identified according to their RAE experience relative for some.

Table 1. CIAL with RAE in Cauca Province, Colombia¹

CIAL with RAEs	Founded/ Municipality
San Bosco Hombres: Small-scale production of maize seed	Feb 1 1991 Santander de Quilichao
Pescador: Small-scale production of common bean seed	March 1 1991 Caldono
El Diviso: Small-scale production of maize seed	Sept. 24 1991 Rosas
Cinco Días Mujeres: Production of bakery products from soybeans	March 12 1992 Timbio

CIAL with RAEs	Founded/ Municipality
ASOPANELA: Production of panela²	April 28 1992 Rosas
El Jardín: Small-scale production of common bean seed	Sept. 15 1993 Caldono
Carpintero: Small-scale production of common bean seed	Oct. 6 1995 Morales
El Placer: Small-scale production of maize seed	Aug. 22 1996 El Tambo
San Isidro Mujeres: Production of food from soy products	Oct. 1 1996 Santander de Quilichao
Santa Isabel: Small-scale production of pea seed	Oct. 1 1997 Totoró

¹ From IPRA Project database.

² Uncentrifuged brown sugar patty.

As there was insufficient information on the existing types of RAE, it was assumed that they could be subsistence agro enterprises or in the initial stages of development, which do not generate sufficient economic surpluses to be capitalized and that differ in the use of family labor.

Prior to the selection, excluding criteria were identified: armed conflict (CIALs El Placer and Santa Isabel) and the amount of documentation (CIAL El Diviso). A rapid poll was conducted in the remaining 7 CIALs with RAEs, using a semi-structured interview, designed according to criteria that integrate organizational and production factors, without becoming isolated from the context of the process of forming the RAE in the CIAL and its implications on the lives of the farmers and on the community. The criteria were conditions of poverty in the zone, gender, type of product and its influence in the diet, organization, complexity of the operations and research. San Bosco Hombres, Carpintero, San Isidro Mujeres and ASOPANELA were selected. Upon discussing the information from the poll of the selected CIALs, it was decided to include the CIAL Cinco Días Mujeres because studying the organizational problems that they are facing was considered to be illustrative (Table 2).

In addition, two groups of committees differentiated as to the continuity of their research (e.g., the second group in addition to the RAE carries out farming activities that are not related to the research):






CIALs with RAEs:	Carpintero and ASOPANELA
CIALs that are RAEs:	San Isidro Mujeres, San Bosco Hombres and Cinco Días Mujeres

The CIALs San Bosco Hombres, San Isidro Mujeres, Carpintero and Cinco Días Mujeres are located in different parts of the county seat and have basic services, primary schools, health centers and unpaved access roads. The CIAL ASOPANELA also has the basic services but is located along the Pan American highway, which has facilitated the effective marketing of their product.

The final selection of CIALs also makes it possible to relate the contrasting conditions of poverty in the zones and their influence on the functioning of the RAEs. The research was distributed in the North (San Isidro Mujeres, and San Bosco Hombres in Santander

de Quilichao), Center (Carpintero in Morales) and South (Cinco Dias Mujeres in Timbio and ASOPANELA in Rosas) of Cauca Province.

Table 2. CIALs with AERs selected.

San Bosco Hombres	San Isidro Mujeres	Carpintero	Cinco Días Mujeres	ASOPANELA
RAE Founded				
1996	2001	1997	2002	1983
Municipality –Cauca Province				
Santander de Quilichao	Santander de Quilichao	Morales	Timbio	Rosas
				
Production Characteristics				
Small-scale production of maize seed. They process surplus grain in threshed maize, bran and meal, adding value to the “fresh” product at two levels: the selection of the grain for seed and its physical transformation.	Small-scale production of common bean seed. They do not carry out complex operations or have much infrastructure, but they dedicate a good part of their time to the production.	They make bread from wheat flour, supplemented with soy flour. They have a production site and the equipment required for the production.	They produce bakery products from wheat flour. They have a production site and the equipment required for baking bread.	They produce panela in several forms. The level of complexity of their activities has been increasing as they advance in the process. Their marketing is successful, given the closeness of the production site to the Pan American highway.
Organization				
The organizational structure of the CIAL	The organizational structure of the CIAL	The organizational structure is the CIALs	They have the organizational	They work in a group, but the organizational

San Bosco Hombres	San Isidro Mujeres	Carpintero	Cinco Días Mujeres	ASOPANELA
does not function (constituted by 3 people) although they do work as a group. In addition to the time dedicated to the RAE, they also do other farm work (crops) that contributes to the functioning of the RAE.	does function (5 people), and they work as a group during the production and marketing of the product.	(5 people); at present they work as a team. They combine the time dedicated to the RAE, with farm work that contributes to the purchase of ingredients. They are in the process of getting a tax no, and resources through the UMATA.	structure of a CIAL (5 people). They form part of the group that makes bread.	structure of the CIAL is incomplete (3 people - relatives and another who does extension work). They are also trying to obtain resources for modifying the area where they produce the cane juice.
Research				
At present they are not doing any research, but are motivated to begin on upland rice.	They are doing research to improve maize production.	At present they are not doing any research for fear of losing the investment in the trials (as has occurred before). In the future they want to do research on green beans.	They are in the stage of evaluating trials with the soybean crop.	They are doing research on two cane varieties and on alternatives for fertilization.
Constraints				
At present the generation of income is not better because they have not been able to meet the clients' orders, caused mainly by the climate, which has been unfavorable for production.	The long dry season and the high cost of inputs are affecting the volume of production. At the same time, marketing is affected by the low frequency and high cost of the transportation and by their low supply capacity.	Marketing and standardization of production.	At present it shows organizational problems due to lack of commitment among participants. This generates fights for leadership, which in turn affect production activities.	At present they have problems marketing their products in North Cauca because FEDEPANELA requires a sanitary register that certifies good manufacturing practices.

San Bosco Hombres	San Isidro Mujeres	Carpintero	Cinco Días Mujeres	ASOPANELA
Future				
In the future they want to have their own site (bigger) for the RAE activities, as well as a shop for selling inputs and a warehouse for storing products. They want the RAE to provide services to the community and generate employment.	Improve the quantity and quality of common bean and maize seed.	Adapt the production site and contribute to improving the nutrition of the children in schools and family welfare homes; generate income.	Improve income and product quality.	Adapt the panela processing area to provide milling services to the community.

In addition to the foregoing selection process, another alternative of analysis was considered: statistical. Logistic regression (Hernández, 2000) establishes the relationship between the criteria and the degree of adjustment for each CIAL.

To obtain the 10x10quadratic matrix required for this tool, it was necessary to include additional information from three CIALs: El Diviso, Santa Isabel and El Placer (Table 3). This matrix is a step prior to graphic analysis.

Table 3. Data matrix: Criteria against CIAL with RAE.

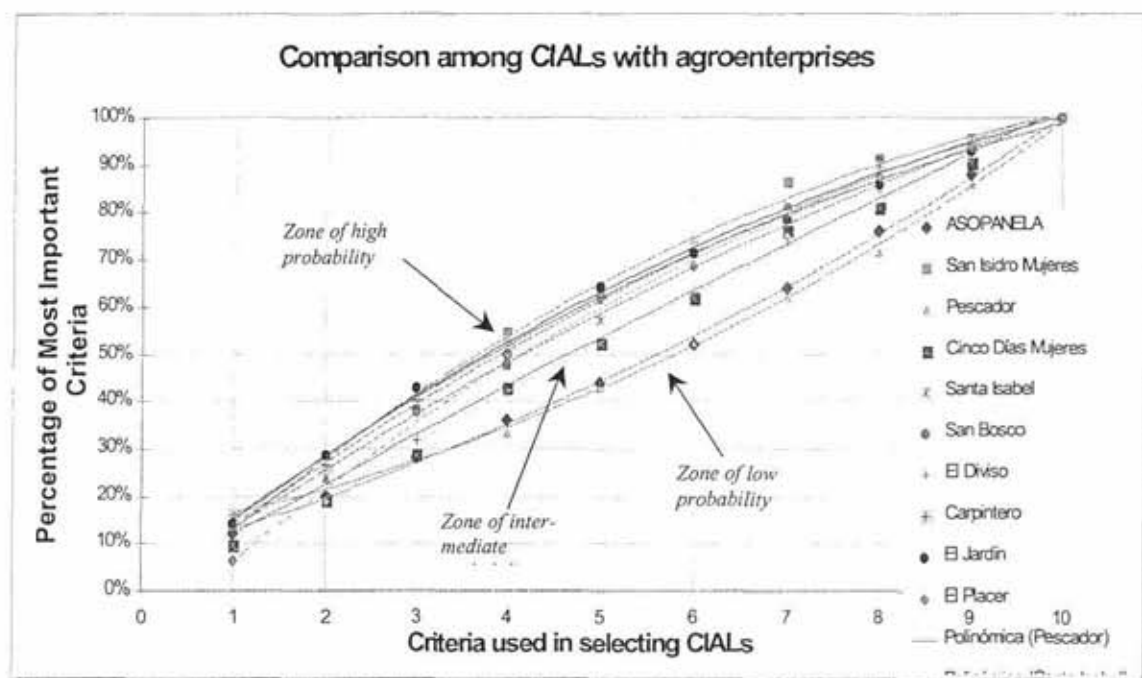
Data Matrix											
Distribution of Frequencies of Acceptance											
CIAL with RAE	Criteria										To
	1	2	3	4	5	6	7	8	9	10	
1. ASOPANELA	3	2	2	2	2	3	2	3	3	3	25
2. San Isidro Mujeres	3	3	3	3	2	3	2	1	1	1	22
3. Santa Isabel	3	2	3	2	2	1	3	2	2	1	21
4. San Bosco	3	3	2	2	3	2	2	2	1	1	21
5. Pescador	3	2	1	1	2	2	2	2	3	3	21
6. Cinco Días Mujeres	2	2	2	3	2	3	2	1	2	2	21
7. Carpintero	3	2	3	2	2	1	2	2	1	1	19
8. El Diviso	2	3	1	2	2	2	2	2	2	1	19
9. El Placer	1	2	3	2	2	1	1	2	1	1	16
10. El Jardín	2	2	2	1	2	1	1	1	1	1	14
Total	25	23	22	20	21	19	19	18	17	15	185
Selection Criteria:											
1. Time dedicated to the RAE											
2. Contribution to food security											
3. Organization of the RAE											
4. Capacity for self-management of the RAE members											
5. RAE-community interactions											
6. RAE production conditions											
7. Reaching RAE objectives											
8. Age of the RAE											
9. Marketing											
10. Conditions of the zone											

In the regression analysis, the criteria for selecting the CIALs were predetermined (Table 4). The criteria were assigned values on a scale of 1-3. A 1 indicates that the CIAL has little relation to that criterion vs. 3 for a high relation. In this way, each CIAL was graded for each criterion, generating a matrix, which was then analyzed using logistic regression.

In Figure 1 the CIALs are represented by curves. The most related to the criteria have the highest percentages on the Y axis; the contrary corresponds to the lowest percentages.

The results of the matrix express cumulative percentages of the criteria used in selecting the CIALs. Three probability zones (high, intermediate, low) were distinguished, depending on the concave, convex and approximate line of each curve, respectively. CIALs with RAEs in each zone were selected. In the zone of greatest concordance, were the CIALs San Isidro Mujeres, Carpintero and San Bosco Hombres; from the zone of lowest concordance, ASOPANELA; and from the zone of intermediate concordance, the CIAL Cinco Días Mujeres.

Figure 1. Comparison among CIALs with RAEs.



Upon comparing the results of the selection by qualitative and quantitative methods, a great similarity was found in the results although the sample of CIALs with RAEs was not large.

Executing the research

Progress made

Progress has been made in obtaining primary information on the background, through the application of semi-structured interviews in the CIALs Carpintero, Cinco Días Women and San Isidro Women. In San Isidro Women and Carpintero, group interviews were held in order to characterize the RAE.

Difficulties

Although there were delays in executing the study because of the coffee harvest, the people were willing to collaborate. As of the second semester, both the men and women farmers had more time to dedicate to activities outside their routine work.

The initial Log Frame for the research proposal did not consider the assumption of other parallel research such as a study of evaluation of impact, which is being developed in three CIALs. It was proposed to make an effort to decrease the time of fieldwork so that the methods used had to be as efficient as possible in gathering the required information.

The farmers do not keep records or secondary information to provide details on important situations in their development process as agro enterprises. Thus it was necessary to rely on participants' memory, delaying the fieldwork and perhaps introducing imprecision due to the passing of time.

Lessons learned

The dialogue and group interviews are tools that have allowed the recording of information to evaluate priority aspects considered in the semi-structured interview and in the formats.

It is necessary to adapt the proposed methods to studying each CIAL, given the fact that they operate in totally different contexts. Apparent similarities do not necessarily give way to generalizations.

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Introduction

In 2001 the International Center for Tropical Agriculture (CIAT) embarked on a new project entitled, "Beyond Agricultural Productivity to Poverty Alleviation" (BAPPA). CIAT, one of the Future Harvest Centers of the CGIAR (Consultative Group on International Agricultural Research), has worked in eastern and southern Africa since the early 1980s, primarily focusing on increasing bean productivity among small-scale farmers in partnership with national R&D partners. CIAT's mission is to reduce hunger and poverty in the tropics through collaborative research that improves agricultural productivity and natural resource management. To achieve this goal, CIAT must go beyond improving food supply to address the underlying causes of poverty. The BAPPA project represents a greater emphasis on CIAT's work on integrated community development, building on gains in bean productivity but going beyond productivity issues.

While increasing food supply is often a necessary condition for improving food security, increases in food supply and rural incomes do not guarantee improved rural livelihoods and food security at the household level. Farmers' financial benefits from agriculture are often reduced by their limited opportunities for adding value to their agricultural produce, poor marketing information and low bargaining power with middlemen. Unless resolved at the household level, factors such as chronic disease, lack of clean drinking water, gender bias, poor knowledge of nutrition and sociocultural practices may undermine the adequate utilization of available food.

The BAPPA project aims to address the bottlenecks that hinder farmers from benefiting fully from research-generated agricultural technologies. Recognizing that none of this is new territory to many NGOs, the project's strategy to achieve this objective by forming strong, holistic, interdisciplinary partnerships with development organizations. The project has 5 outputs:

- Catalyze improved organizational capacity in pilot communities
- Support farmers' experimentation and application of technical skills
- Develop an approach to strengthen community capacity to invest their potentially higher income in alleviating poverty
- Assist farming communities to protect their environmental resources

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Support women's empowerment and leadership at the community level

The BAPPA project works in 3 pilot sites in eastern and southern Africa: Kabale District in southwestern Uganda, Dedza District in central Malawi and Lushoto District in northern Tanzania. These sites were selected on the basis of two main criteria: impact achieved from bean technologies and presence of a willing NGO collaborator. In Kabale the project operates in 2 villages in Rubaya Subcounty and is implemented in collaboration with Africare, a US-based NGO. The project began work in May 2001. Concern Universal, a UK-based NGO implemented the project in two villages in Linthipe EPA for one year starting in July 2001, but pulled out in 2002. In Lushoto District, the project has been operating in a village in Soni Ward since January 2002 and is

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implemented by TIP (Traditional Irrigation Project), a local NGO. Project activities were initiated.

To monitor the impact of the project and assess change, a baseline study was carried out during the first year of the BAPPA project. This report presents the results of that study, which was loosely based on the sustainable livelihoods framework (Carney, 1998) which focuses on a comprehensive view of the livelihood circumstances of the poor including ownership of assets, livelihood activities, factors contributing to their vulnerability and the relationship between relevant factors at micro, intermediate and macro levels.

This paper explores the following dimensions of rural livelihoods in relation to the five project outputs (Table 1 lists indicators used to measure key variables related to major project outputs):

- Household resources
- Poverty and vulnerability
- Social capital, participation and conflict
- Agricultural production and food security
- Land use and management
- Gender relations

Methodology

Both participatory rural appraisals (PRAs) and formal surveys were used to collect baseline data in the three study sites. PRAs were conducted over 1-2 days and involved activities such as visioning and group discussions on the gender division of labor, wealth ranking, prices and crop calendar. Formal surveys took place during the first season of project activities: November 2001 in Rubaya, November-December 2001 in Linthipe, and June 2002 in Soni. Key informants from each study village were involved in wealth ranking, and the results were used to assign surveyed households to wealth groups. As wealth categories identified in the three sites are not necessary comparable (i.e., wealthy in Soni is not the same as in Linthipe), descriptions of each wealth are provided in the appendix.

Table 1: Indicators used to measure livelihood variables.

Variable	Indicators	Comments
Livelihood assets	Sex and age of head of household, household size, educational and literacy level of the head of household and partner, no. of school age children out of school, household labor, dependency ratio, annual agricultural income, sources and importance of nonfarm income, ownership of livestock	Successful asset accumulation "often involves trading-up assets in sequence"; e.g., chickens to goats to cattle to land (Ellis et al., 2002); no information was collected on overall household income
Social capital	Group membership, technology/knowledge diffusion pathways, participation in NGO activities	The existence of indigenous groups and technology and information diffusion pathways are indicators of the bonds of social trust and social networks; participation in NGO activities is a measure of linking social capital
Poverty and vulnerability	Household wealth status, borrowing and saving behavior, investment priorities, coping strategies in emergencies	Rising prosperity depends on having multiple opportunities for asset accumulation. Respondents were asked what they would invest in if their income were to double.
Agricultural production	Crops produced and purpose, multiplication rate of major crops, adoption of modern crop varieties, use of inputs, seed sources, proportion of crops sold, marketing constraints	
Food security	Food shortages and reasons for them, how long the harvest lasts, no. of meals eaten during the hunger period	
Land use and management	Location of farm land, erosion control measures, measures for improving soil fertility, tree planting behavior	
Participation and conflict	Optimism about the ability to bring about positive change locally, participation in collective action, social divisions and conflict, changes in the level of theft, willingness for children to become small-scale farmers	The extent to which people are willing to act collectively to solve social problems is a good indication of the level of social cohesion
Gender relations	Areas of conflict between married couples and decision-making patterns and differences in perceptions by husbands and wives, school attendance by boys and girls	

The formal survey covered a random sample of households from project villages plus a third nearby nonproject village. Table 2 shows the sample size and breakdown by location. Interviews were divided into two parts: the first general section addressed the farm couples, where applicable; the second part was conducted individually with male and female farmers. The interview schedule covered the following topics: household characteristics and resources, agricultural enterprises, use of inputs, marketing, environmental issues, tree planting, household well-being, savings and credit behavior, group membership, intrahousehold decision making and conflict, social participation and conflict. All quantitative information related to income, savings, borrowing and crops yields were based on farmer recall. Due to the unreliability of income data collected through recall, farmers were only asked to report on agricultural income.

The first part of the interviewed covered household-related topics, while the second part was conducted separately with husbands and wives. In Rubaya, 52% of the first part of the interview was conducted with women, 40% with farm couples and 8% with men alone. In Linthipe, 43% of the interviews were held with couples, 37% with women alone and 20% with men alone. In Soni, 78% of the interviews were conducted with couples, 19% with women alone and 2% with men alone.

Table 2. Sample size (no. of households).

	Rubaya, Uganda		Linthipe, Malawi		Soni, Tanzania	
	Sample	Population	Sample	Population	Sample	Population
Project villages	Muguli B: 32 Kalambo: 30	63 53	Mnthala : 49 Yazini: 31	160 36	Shashui	107
Nonproject village	Rukole: 30	53	Chikond e: 41	79	Vuga:	469
Total sample size	92	169	121	275	83	576

Data analysis relied on descriptive statistics; namely, frequencies, means, t test and ANOVA to compare means. To assess and compare men's and women's investment priorities, frequencies and ranked data were converted to scores for more accurate comparison. Variation within study communities was analyzed along three dimensions: wealth, gender and location (village and country) with the objective of exploring how social differentiation affects people's experience of poverty.

Results and discussion: Cross-site comparison and recommendations

When poverty is measured by factors such as income, ownership of assets and access to resources such as credit, land etc. and vulnerability, the picture that emerges from the three sites is one of varying levels of poverty across and within them. Of the three sites, farmers in Soni (Tanzania) were relatively better off, enjoying the highest annual agricultural income (\$149). Poverty was most acute in Linthipe (Malawi), while Rubaya (Uganda) represented a situation of moderate poverty. The following section analyzes poverty within and across the three communities in the context of four dimensions: agricultural production, livelihood activities, ownership of assets and vulnerability.

Agricultural production and livelihood activities

In all three sites agriculture was the predominant economic activity. Farmers in Soni had the most diverse portfolio of crops, including at least 7 cash crops. In contrast, farmers in Rubaya and Linthipe grew some crops mainly for subsistence, many for both

consumption and sale, and relied on only one or two crops exclusively for cash. There was, however, in these two sites, evidence of diversification of cash crops: Soybeans, potatoes and paprika in Linthipe and coffee, wheat and pyrethrum in Rubaya. Additionally, in Linthipe there was evidence of food crop diversification, away from the traditional dependence on maize to increased production of cassava and sweet potatoes. As this and other studies (David, 1999) show, the absence of traditional cash crops contributes to food insecurity, with farmers falling into a cycle of selling large parts of their food crop harvests when prices are low and buying those same foods when prices are high. Significantly, although farmers in Soni bought maize and beans when they experienced food shortages, unlike farmers in the other two sites, they did not attribute shortages to food crop sales.

This study investigated the uptake of crop varieties and land management technologies. On the whole, the adoption of introduced crop varieties at the study sites was moderate to high, but yield estimates for some crops such as potatoes and maize suggest that farmers had not benefited fully from the yield advantages of introduced varieties because of their failure or inability to carry out good agronomic practices (e.g., fertilizers or use of "clean" seed in the case of potatoes). In addition, in areas where NGOs were involved in seed dissemination, the low adoption of some bean varieties (climbing beans in Rubaya, Bush beans in Linthipe) was unexpected. One possible explanation may be related to the practice of one-time seed dissemination by NGOs and farmers' difficulties in retaining seed of new varieties (David & Sperling, 1999), especially in communities where informal social networks are weak, which is not conducive to rapid seed diffusion.

Uptake of land management technologies provides insight into the types of support farmers and communities need to facilitate adoption. As the Linthipe data suggest, Concern Universal's input in terms of training and follow-up was largely responsible for the high adoption of land management technologies. The significant increase in the digging of trenches in Rubaya at the start of the BAPPA project highlights two basic ingredients needed for effective NRM and community development generally. Prior to 2001, few households in Rubaya had dug trenches to control erosion and reclaim gullies despite farmers' awareness of the technology. The BAPPA project organized farmers into groups to dig trenches across plots belonging to several households and provided digging tools. This intervention subsequently led village leaders to establish bylaws requiring all households to dig trenches.

At all sites the combination of low agricultural productivity and limited market opportunities has increased household dependence on nonfarm activities. The high proportion of Linthipe farmers involved in nonfarm activities, for example, is a reflection of poor agricultural performance and chronic food insecurity in Malawi due to drought, low soil fertility and the inability of most households to achieve self-sufficiency in maize. Farmers' attempts to minimize risk by opting for a dualistic strategy of intensifying agricultural production while seeking off-farm employment as a short-term survival strategy are clearly evident in their investment priorities. Farmers in Linthipe and Soni attached a high premium to purchasing chemical fertilizer, while farmers at all three sites showed a strong interest in business.

While nonfarm activities offer a potential pathway out of poverty for rural African households (Ellis et al., 2002: 17), the types of opportunities available to farmers are limited; and some may even contribute to low agricultural performance. Four areas of off-farm income-generating activities were common to the three sites: casual labor, petty trade, brewing and salaried employment. A recent study in Malawi (McDonagh, 2002) shows that, while casual labor is an effective survival strategy, it forces many farmers—the poor in particular—to neglect their own fields at key periods during the

farming season. The study concludes that the overall effect of casual labor on farm-based livelihoods is negative. Due to high start-up costs and limited credit opportunities, relatively few farmers in the three communities were involved in remunerative off-farm self-employment activities such as maize milling, carpentry and poultry, which could serve as pathways out of poverty. Indeed, farmers' investment aspirations highlight the need to expose farmers to new business ideas. Across sites, men were more likely than women to engage in off-farm income-generating activities and had a more diverse portfolio of activities, including more skilled activities such as salaried employment. Male migration for casual employment was found only in Rubaya, an area of low male involvement in agriculture. Aside from petty trade, women tended to engage in relatively low-paying activities such as casual labor, brewing and handicraft production.

Asset ownership

The key assets of rural African households are land, livestock, labor, education, implements and tools, networks that increase trust, ability to work together, access to opportunities and informal safety nets. Access to enough productive land for crop cultivation and livestock is crucial for the rural households to generate a viable living. In Rubaya there was evidence that the poorest households had least access to land in the wetlands, the most suitable land for potato and vegetable production. In Linthipe better-off farmers cultivated significantly larger land holdings in both the uplands and *dambos* (river beds).

Ownership of agricultural tools and use of agricultural inputs are also associated with improved well-being as they enhance agricultural productivity and the latter in turn permits further investment in inputs. Farmers' inability to dig trenches in Rubaya for lack of appropriate tools illustrates the association between ownership of agricultural tools and poverty. A key reason why farmers in Rubaya did not dig trenches to control soil erosion was lack of tools. At all sites wealth was strongly correlated with livestock ownership; however, the importance of livestock lies in substituting lower value livestock (e.g., chickens, small ruminants) for higher value livestock (cattle, pigs, donkeys), the type and number of livestock owned is key to achieving rising assets over time. While most households surveyed owned chickens, only the wealthiest households owned cattle, pigs or donkeys. In Soni a third or more of the livestock owners kept cattle and small ruminants, whereas in Rubaya and Linthipe few households owned cattle. In those two sites, aside from chickens, most households had an average of 2-3 goats or sheep, not enough to make a significant contribution to poverty alleviation. Not surprisingly, farmers in Rubaya and Soni attached high importance to livestock as an investment priority. Livestock received lower priority in Linthipe because of the high risk associated with theft.

Survey data confirm that the amount of available household labor contributes to household well-being. Households in Soni had the highest number of productive workers; and notably in Rubaya and Soni, but not Linthipe, wealthier households had a significantly higher number of productive workers. Rubaya had the lowest number of productive workers due to the high number of men and women engaged part time in agriculture and the resulting high dependency ratio. The lack of correlation between wealth and household labor in Linthipe may be related to the observations by a recent study that except for livestock holding, there were few significant differences in the assets profiles (defined as household size, education, ownership of tools, land and livestock) of different income groups in Malawi (Ellis et al., 2002).

At the community level, Soni had the highest proportion of formally educated farmers, both male and female; while farmers in Linthipe were the least educated. At the

household level, however, there was a correlation between wealth and educational level only among men in Linthipe. Education contributes to poverty alleviation through various direct and indirect mechanisms—an area not explored in this study.

Significant differences existed among the communities in terms of membership in indigenous groups, with Rubaya having the highest number of groups and proportion of households belonging to groups. Soni had the next highest number of local groups and number of households belonging to groups, while there were few indigenous groups in Linthipe. Local groups played various functions including providing informal safety nets for burial assistance, transportation to hospital and obtaining credit, facilitating savings and the exchange of new technologies and information, providing services such as labor exchange and generally strengthening social cohesion among kin-based groups. Wealthier households in Rubaya and Soni had more members involved in groups, presumably because of their larger size and better access to resources (e.g., time, money, skills). Surprisingly, there was no difference in the number of men and women belonging to groups. In Linthipe and Soni, government and NGO- created groups were carrying out development activities. The basis on which these groups were formed and the subsequent implications for their sustainability after development projects end, are issues of concern and require further research.

Vulnerability and gender considerations

Rural households in the three study sites and throughout Africa are subject to calamity trends, external shocks (such as drought) and seasonality in health, prices, agricultural production, employment opportunities and resource availability—factors that are outside their control. Ill health, particularly malaria and HIV/AIDS, was an important shock not investigated here. As noted by a recent study in Malawi and Tanzania, rural households are unable to plan ahead and therefore cope with illnesses with short-term survival strategies, resulting in net welfare, cash and capacity loss, which weakens the capacity of households to generate work (Koestle, 2002). Across sites, drought, crop failure, food shortages, insufficient capital, low prices and lack of markets were common shocks. In a number of instances, farmers showed great innovation, often without external assistance, in tackling major shocks. For example, in Rubaya, farmers responded to the devastating effects of bean root rots by spontaneously adopting more tolerant climbing beans. In line with government policy to combat the effects of drought, farmers in Linthipe had diversified their food crops and were growing more drought-tolerant crops such as cassava. Crop diversification was a general response to vulnerability observed at all three sites, but was most successful in Soni due to several factors including favorable climatic conditions, proximity to urban markets and strong institutional support for horticultural production dating back to the late 1960s (pers. comm., R. Kirkby).

Coping strategies were similar across sites, with most households reducing the number of meals eaten during the “hungry season,” borrowing money from friends and relatives, working for food or money, and borrowing or buying food. To cover educational and health expenses, farmers were often forced to sell crops, land or livestock, contributing to the poverty cycle. Local groups played an important safety net role by providing credit in Rubaya, but farmers everywhere tended to seek assistance from friends. Vulnerability may be exacerbated at community level by a high level of social division that prevents communities from engaging in collective action to address common problems. The major social divisions identified in the study communities were asset related (access to land, including wetlands, wealth, ownership of livestock, education). Interestingly, a high proportion of farmers in the poorest communities (Linthipe and

Rubaya) perceived an increase in the level of theft, suggesting an association between poverty, theft and social divisions.

Although Rubaya was the only site where survey respondents highlighted poor relationships between men and women as a social problem, the study consistently documented women's disadvantaged position and greater poverty in the three communities. Generally, women were less educated, saved and borrowed smaller amounts of money compared to men, had less decision-making power than men, and owned fewer productive assets (livestock, land). While analysis of conjugal decision-making data was problematic, the findings across sites suggest that women rarely make agricultural or personal-level decisions on their own. Cultivation on personal plots, which allows married women more economic freedom, was only found in Soni, the most market-oriented location. Typically, women had greater control over smaller amounts of income. At all sites, the dominant male decision-making pattern gives rise to marital conflict.

Women had higher workloads compared to men, largely due to their domestic responsibilities; but in the case of Rubaya, also as a result of male migration and men's lower input in agriculture over all. The proportion of female-headed households was high across sites, particularly in Rubaya; and everywhere those households formed a disproportional number of the poorest group. Surprisingly, the study did not reveal strong educational discrimination against girls, possibly because most children in surveyed households were at the primary level, where girls face less discrimination. Still, this finding represents an important advance in the education of girls. Across sites, women complained of similar marital problems: conflicts over money and decision-making, failure of men to work and provide for their families, drinking and domestic violence. Marital problems shared by men in the three communities included conflict over money and decision-making and wives' disobedience.

Conclusions

Although this study presents a rather dismal snapshot view of the three communities, farmers at all sites—but especially in Soni, where living standards were better—were relatively optimistic about the future, with half or more wanting their children to become small-scale farmers. Growing evidence indicates that the key to developing pathways out of poverty in rural Africa “is a cumulative process that requires the ability to build assets and diversity across farm and non-farm activities” (Ellis et al., 2002). Farmers in the BAPPA project sites, in conjunction with development partners, have started this process. The BAPPA project, a unique partnership between an agricultural R&D institution and NGOs, can build on progress made and make unique contributions to poverty alleviation.

Recommendations

Based on the study's findings, some specific recommendations for project interventions that complement on-going activities include:

- Developing creative, workable mechanisms for credit provision and identifying strategic partners who can develop credit programs that cater to the needs of both men and women of different wealth categories
- Helping men and women farmers build assets, particularly livestock holdings
- Training farmers to identify market opportunities and working with them to carry out diverse nonfarm economic activities
- Improving farmer access to agricultural inputs through credit and more creative programs

Strengthening farmers' capacity to form and manage both social and entrepreneurial groups based on a sound understanding of social ties and existing groups
Identify partners that can improve farmers' literacy levels
Develop sustainable technology-dissemination mechanisms
Redress gender inequalities in workload, decision-making and income levels by raising awareness among adults and especially children, introducing labor-saving technologies for women and diversifying women's nonfarm economic activities.

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Visitors attended by staff from the SN-3 FPR team, Oct. 2002 - Sept. 2003

Date 2002	Name/Position	Institution	Country	In Charge
Oct 24/02	Efraín Rodríguez	Director Fundación Amazónica Los Churumbelos	Colombia, Putumayo.	José Ignacio Roa
Oct 31/02	Otoniel Villegas y Elizabeth Muñoz.	Universidad Autónoma Centro de Información	Colombia, Cali.	José Ignacio Roa
Oct 31/02	German Bashemheimer	Universidad Autónoma, comunicación.	Colombia, Cali.	José Ignacio Roa
Oct 31/02	Andres Perafán	Universidad Javeriana, Macroproyectos	Colombia, Cali.	José Ignacio Roa
Oct 31/02	Leonardo Duque	Universidad Javeriana, Director Postgrados	Colombia, Cali.	José Ignacio Roa
Nov 12/02	Edson Gandarillas	Fundación PROINPA	Bolivia.	Susan Kaaria, Carlos A. Quirós
Nov 12/02	Pilar Lizarraga y Carlos Vacaflorez	Fundación JAINA, Coordinadores	Bolivia	Susan Kaaria, Carlos A. Quirós
Nov. 22/2002	Mr. And Mrs. Jean Marc Duval Mr. Andre Hoovert Mr. Luis Vargas Mrs. Anne Sophie Berche	Canadian Ambassador and Wife Aggregate Humanitarian Issues. Embassy of Switzerland Advisor, Embassy of Japan Policy, Culture and Cooperation Advisor. Embassy of Belgium	CIAT, Cali	Susan Kaaria Anna Knox Rupert Best
Dic 9/02	Marino Valderrama profesor del Instituto técnico de Roldanillo y 8 ganaderos de la región..	Profesor del instituto e integrantes de un proyecto con la Universidad Nacional. Se hizo una gira a la estación del CIAT en Quilichao.	Colombia, Valle.	Carlos A. Quirós José I. Roa
Dic 19/02	Wessel Eyman	Director RED CAPA	Chile	Susan Kaaria
Dic 19/02	Nora Presno	Coordinadora RED CAPA	Chile.	Susan Kaaria
2003				
Enero 24/03	Reinaldo Vélez	Coordinador Medio Ambiente y Territorio del CRIVA.	Colombia, Vaupés.	José Ignacio Roa
March 10, 2003	Edgar Guardia	Director Ejecutivo FDTA-Valles	Cochabamba, Bolivia	Carlos Arturo Quirós

Date 2002	Name/Position	Institution	Country	In Charge
				Vicente Zapata Luis A. Hernández Elías Claros Fernando Hincapié
May 19, 2003	Dr. Hari Har Ram Dr. R. K. Pant	Professor Vegetable Breeding and Head, Vegetable Science and Nodal Officer, Pantnagar Centre for Plant Genetic Resources Technical Coordinator, Diversified Agriculture Support Project, Uttaranchal, Dehradun, Vasant Vihar	India India	Susan Kaaria
May 30/03	Nic Hogenboom Jeffery Bentley	Consultores PREDUZA	Ecuador	Carlos A. Quirós
June 11, 2003	Dr. Gary Toenniessen	Director, Food Security Division, The Rockefeller Foundation, New York	USA	Susan Kaaria
July 7/03	Jesús Antonio Tumiña/Responsable de los Recursos Naturales	Cabildo indígena de Silvia.	Colombia, Cauca	José Ignacio Roa
Julio 14/03	Patricio Ponce y Jimena Tapia.	Fundación MANRECUR	Ecuador, El Ángel Carchi	José Ignacio Roa
July 14- 15/03	Cecilia Cabascango Teresa Carlosama Ximena Tapia Aldemar Nejer Luis Ponce, Mauricio Lara Patricio Ponce Edwin Revelo	Técnicos de MANRECUR	ECUADOR.	José I. Roa
July 29/03	Juan Pablo Higuera	CORPOICA, Medellín	Colombia	Elías Claros T. Jorge L. Cabrera Fernando

Date 2002	Name/Position	Institution	Country	In Charge
				Hincapié
Agosto 6/03	Bernardo Rivera / director maestría Sistemas de Producción	Universidad de Caldas	Colombia, Caldas	José Ignacio Roa
August 26/03	Erika Eliana Mosquera	AGROEMPRESAS RURALES, SIDER, Cali	Colombia	Jorge Luis Cabrera
August 29/03	Mariela Quintero	Innovación Rural, Cali	Colombia	Jorge Luis Cabrera
Sept 25/03	Fabio Trujillo Benavides Fabio Gomez	Secretario de agricultura Director Ejecutivo, FAS	Nariño, Colombia Valle, Colombia	Carlos A. Quirós
Sep 28/03	Efrain Rodriguez	Fundación OIKOS	Colombia, Mocoa	José Ignacio Roa

OUTPUT 6. INTERNAL PROJECTS AND OTHER INSTITUTIONS SUPPORTED AND STRENGTHENED IN CONDUCTING PR

Milestones

School-age children acquire basic concepts of PR in theory and practice.

"Sharing learning experiences" - Workshops among organizations that have begun joint work in Central America, CIAT, CIPASLA and community groups in Cauca Province, Colombia"

Researchers: José I. Roa⁵², Lucy Figueroa,⁵³ Carlos A. Quirós,⁵⁴ Rodrigo Vivas,⁵⁵ Alfonso Truque⁵⁶

Highlights

Central American organizations of young people reorient their attitude and execution of their projects as a result of interacting with the farmers' organizations constructed on the basis of participatory methodologies

Abstract

The purpose of these workshops is to promote interactions among networks of young people supported by the Kellogg Foundation and farmers' organizations based on participatory models and to get to know firsthand the different participatory processes of the models that the Participatory Research Project (IPRA) at CIAT has been investigating in the communities in Cauca Province, Colombia. The strategy consisted in organizing field visits so that the visitors could learn about the processes of CIPASLA (Institutional Consortium for Sustainable Agriculture on Hillsides) and the different projects that support CORFOCIAL (Corporation for Promoting CIALs) and the research activities of the CIALs (Local Agricultural Research Committees). The community projects analyzed have components of adaptive research, production, transformation, marketing, communication, education, gender and natural resource management. The most outstanding outcomes mentioned by the participants were the importance of the participatory methodology, where the projects should arise from a need felt by the community itself; the importance of transmitting basic values that should be passed on to the new generations; respect for the land and the environment; and a feeling of loyalty, commitment to the process and to joint work. They also understood the importance of good project administration, clear rules, equity and technical support committed to the process of participatory research, which underlies the whole process.

Identification of the problem

The need to deal with situations that are more complex each day, such as the ever-increasing hunger and deterioration of natural resources, leads us to think about the need to involve the local actors in a broader R&D agenda, in which all those involved should participate. Participatory methods are an alternative tool for facilitating these processes and enable each actor to be heard and take part in

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the decision-making. Without these conditions, many projects have had negligible impact despite years of work and high investments. For this reason the active participation of the project beneficiaries is becoming more important so that they are able to take part in the development of their future. The role of the outside actors is to facilitate the processes in integrated teamwork and identify technological alternatives that respond to the local demands.

Background

With the spirit of integrating the projects financed by the Kellogg Foundation (WKK), the IPRA project was invited to participate in "The Second Meeting of Projects in the Initiative of Human Nutrition in the Latin American and Caribbean Region," held in San Salvador from 3-9 December 2000. At this event the CIAL methodology was made known. It was seen as an alternative that could possibly be applied in other areas such as health and education.

Later we received the visit of the Directors of Programs of Latin America and the Caribbean, Drs. Jana Arriagada and Heliodoro Dias, who had the opportunity to talk personally with members of some CIALs in Cauca, and they were also able to learn about the interinstitutional model, CIPASLA. This experience—being able to converse with the actors of local organizations, visualize their accomplishments, their capacity to manage their organization and their projections—showed the importance of having other Foundation-supported projects or farmers' organizations interact and learn about these experiences.

Given the foregoing, the IPRA Project at CIAT proposed to develop a milieu, where the organizations involved in the CIALs and CIPASLA and organizations from four interinstitutional projects in Central America could interact. The projects selected were part of the Youngsters Networks of Nicaragua, El Salvador and Guatemala. In each case a group of ten or more institutions form a network, a consortium or an association that has received financial support to strengthen a style of joint work, where they lead the local development of a selected geographic area, with participation of the community, especially the younger people.

Methodology

The methodology consisted in conducting a sensitization exercise, prior to the field visits to CIPASLA, CORFOCIAL and the CIALs, on theoretical aspects and the way in which the participatory models have been implemented, as well as some of the results obtained. For two days they visited the different projects that form part of CIPASLA, ASOBESURCA, accompanied by the Director of CIPASLA, Rodrigo Vivas, and These projects have components of adaptive research, production, transformation, marketing, communication, education, gender and natural resource management, among others. At these sites they had the opportunity to interact directly with the actors of the process and explore different aspects of interest to the visitors in much greater depth.

On the third day the participants had the opportunity to visit some CIALs, where they could see methodological steps being applied and the adaptive research trials that they carry out. They were able to interact, with the farmers and the administrator of CORFOCIAL, Alfonso Truque

At the end of each day, discussions were held among the participants, with the aim of extracting the lessons learned (positive and/or negative) from each of the experiences.

The last day of the workshop, a summary was made of what had been observed, the workshop was evaluated, and a list of tasks was made, including commitments on the part of the participants with respect to what they would do when they returned to their countries in order to strengthen their networks, taking into account their respective conditions.

Activities

Basically five activities were undertaken:

- Presentations on the theoretical framework and results obtained with the participatory research methodologies in Cauca
- Tours and workshops to exchange information with the community organizations from Cauca and the networks of young Central Americans
- Discussion and analysis of the experiences by the visitors
- Establishment of commitments
- Follow up to the commitments made in Colombia

Results

Following the discussions and analyses of their experiences, it was expected that the different institutions and their networks would begin a process of adapting the lessons learned. To each network coordinator, a questionnaire was sent out to facilitate their reflections on the relevant aspects, adaptations or adjustments of the participatory methods that they had implemented in their projects after their visit to Colombia.

The following questionnaire and responses are a compendium of what was expressed by the members of the different networks.

What elements or aspects of the methodology and experiences of the visit have been put into practice in your local projects?

One of the aspects that the participants highlighted most was believing more in the capacities of the local people. The visit permitted them to see and analyze directly how the beneficiaries trained and strengthened in their principles, were capable of executing actions just as any outside professional. With this local capacity, the project was more sustainable, and solid bases for the future were created.

This increased capacity permits the community to take decisions with greater confidence, which is essential for participatory processes. They also prepared profiles of projects based on community priorities, where the execution of these projects will be much more active and participative in those interest groups.

The management group from the Valle de San Andrés is adapting the CIAL methodology for their decision-making, preparing project profiles and executing agricultural projects.

Working with young people who are given the basics of the local and national reality so that they can program relevant activities that strengthen the participatory structure of women in community actions as an indispensable factor in their capacity for self-reliance.

Agricultural and livestock diversification to promote rational management of their natural renewable resources, protection of water sources, maintenance the

ecological balance of the ecosystems in order to contribute to improving their quality of life and food security.

How did you share the knowledge and the material you received in the workshop once you returned to your country?

They have held meetings at the level of the action communities from the Consortium of San Pedro Carcha-San Juan Chamelco Alliance for the socialization of CIAL and CIPASLA activities.

The experience has been socialized with the Community Development Councils (COCODE) in Guatemala with emphasis on the community organizational structure of the CIALs, CORFOCIAL and CIPASLA.

A workshop was prepared to disseminate the methodologies with the technical team from the area of Local Development of Salvadorian Foundation for basic support (FUSAI for its Spanish acronym)

The materials were photocopied and given to other organizations and institutions. In Guatemala, the Universidad Rafael Landivar has plans to translate the CIAL hanbooks to the native language to be used in the formation of future CIALs.

How did they adapt the methodology to the local situation?

The methodologies have not been adopted as such; however, they are implementing the participatory principles, which is fundamental in these processes. They are also applying principles of equity, permitting the communities to take their own decisions and share the risks.

In the case of Guatemala, the legislation has apparently undergone important changes in compliance with the peace agreements, including the officialization of the Mayan languages, a new Municipal Law and the Law of the Urban and Rural Development Councils. These have strengthened the actions undertaken jointly with the consortium. In the case of the Municipality of San Juan Chamelco, activities to sensitize the community leaders are being carried out in order to achieve the outcomes outlined in the Annual Operating Plan.

In the Alliance of Young People of León and Chinandega in Nicaragua, a replica has been made of CIPASLA's coordination system, naming a coordinator who can be neutral at the moment of the decision-making and who does not belong to any other entity.

The work that FUSAI does in the field of agriculture is not specific to research; rather it is the dissemination of appropriate technologies that have been tested, and the CIAL methodologies could be easily adapted. Support is being given to the management group from the Valle de San Andrés, which is one of the commitments acquired.

What difficulties have arisen and how have they been overcome?

Most of the community authorities are adults who have filled these positions consecutively for some time, but an effort is being made to make them aware of the importance of incorporating young people with new ideas. The experience of the adults combined with their different perceptions can contribute more efficiently to processes of change in their community for the collective benefit.

The active participation of the actors in the rural area is very limited so that it is difficult to know the concerns of the majority, which makes community work

very slow; but the financing and execution of the projects march at a much more accelerated pace because it is necessary to see results in the short term. Rural innovations with this type of participatory techniques contribute to accelerating the processes and increasing the participants' interest.

There is a lack of coordination among the different components due to the intent to avoid duplicating efforts in the execution of some activities. Nevertheless, each one in his/her component has planned the activities to be carried out and revised them with the rest of the members.

In the Nicaragua network, some activities have not been fulfilled in accordance with the plan drawn up in Colombia. It is expected that with the naming of the executive secretary, the follow-up should improve.

What was the impact from the workshop and the evaluation of CIPASLA and the CIAL visited?

According to the participants the IPRA Project/CIAT experience of working to strengthen community organizations is enriching. They also mentioned that the topics are easily replicable in the different countries.

Re-orient their thinking based on local experiences.

Motivated to strengthen community structures and channel efforts toward a similar experience

Makes one reflect on our reality and the one visited in the field

Makes one ponder on the role of IPRA/CIAT in the process

The workshop made it possible to see clearly the work being done by the two types of organizations and the methodology used. It was clear that the success of these organizations lies in their training and initial backstopping by the institutions to facilitate these processes. It is also evident that this is the result of a process that require stages or phases in order to reach the goals; that is, projects in the longer term.

With respect to CIPASLA, what most called their attention was that the participants in the process are convinced that they are positive agents of change at the level of their communities and that this process is highly beneficial as it gives them the opportunity to carry out technical activities that contribute to preventing the degradation of natural resources and the conception and utilization of organic farming.

In relation to the CIALs, what impacted them most was the degree of commitment and responsibility that the beneficiaries have acquired with respect to controlling their farms. They themselves are the ones who decide what to cultivate; but not only that—they also disseminate the results obtained, which are considered public assets.

In general this experience generated a great deal of enthusiasm in the different network participants, as well as knowing that an organized community can break with the cycle of poverty when they are organized and open to other circumstances and are capable of becoming sustainable.

In Nicaragua, the Colombian experience generated a great deal of enthusiasm in the different participants, especially knowing that when a community is organized, it can break the poverty cycle and be capable of becoming sustainable. This has led them to want to work more closely and develop different programs in network form.

In the Nicaragua network , they are obtaining legal status: the Consortium Network for Local Sustainable Development in alliance with young people.

Summary of achievements

What do you consider the principal achievements?

Diffusion of participatory methodologies to strengthen the community organizations, which have been successful, as can be seen from their results. The methodologies presented to the participants of the Central American networks were implemented several years ago, and today they are being applied to various production projects that continue, although with some difficulties, and are managed directly by their own members. These projects in which the users participate in their development have a high degree of empowerment and are probably of easier sustainability in the future. Sharing experiences with the technicians of institutions from three Central American countries was also meaningful for them.

All the technicians had the opportunity to know and interact directly with the executors and beneficiaries of the projects that are being executed with the communities in Cauca. They also had the opportunity of learning about the different methods and tools that have been used to facilitate participation and execution; and the different participatory processes on which the research and/or production projects are based.

Permit the members of the community organizations in Cauca to present their projects themselves. Despite the fact that this has been done many times in the national context and occasionally during the visits of people from institutions or representatives of donors, this was the first time that the directors or representatives of the community organizations participated in the whole process in an event of this nature. For them it has been a highly enriching experience and has let them see other visions and have direct contact with representatives of institutions from other countries.

Sharing results among different projects that are or have been supported by the WKK On many opportunities meetings have been held among the diverse projects that the Foundation supports, and we have been surprised to find similarities, differences or ignorance of achievements of other projects. On this occasion, there was more time to share and discuss results or methods that can be easily be adapted and/or applied in other related projects. There is also the opportunity to maintain contact and continue to share results or concerns about the future.

According to a survey done with the participants after their visit to Colombia the achievements that they highlight are as follows:

Learning more about these participatory methodologies and applying them leads to greater acceptance at the community level.

There is more good will among the community organizations
(COCODE)

The participation of young people in training in arts and crafts is stimulated.

It has been possible to train more young people in the methodologies of Healthy Schools.

It has been possible to train more and strengthen the community organizations.

More participation in structures with gender equity

Developing topics of self-esteem

Developing environmental topics

Learning how to manage the methodology, which is a tool applicable in any development institution.

Learning how to be able to work more closely with FUSAI in conciliating circumstances, such as the management group from the Valle de San Andrés and other types of alliances (e.g., the counterpart funds of Nejapa and Soyapango)

Having learned about a noteworthy and successful experience.

Having conceptualized our experience in light of the experience

Internalizing the CIAL methodology and the CORFOCIAL and CIPASLA experience in organizations and institutions.

Obtaining legal status

In Guatemala (FUNDEMI,) the achievement within the community organization component for strengthening technology, has been the creation of "Community Centers of Technology," which are in charge of replicating the training in their respective work groups with the support of the technician-facilitators.

Manage resources

Sign agreements

In accordance with your experience thus far, would you say that the original expectations for achieving these results were realistic? If not, why? How should unrealistic expectations be addressed? If you have modified the expected outcomes, indicate the changes.

Yes, the central idea of this project was very realistic in the sense that the Foundation already knew a great deal of the methods that our IPRA Project has developed, and they even financed these processes at the onset. These processes have gradually been passed on to the farmers themselves, and today they are the ones who direct and lead them for the benefit of the participating communities.

With the previous results, what we were looking for was to share both the successes and failures of these methodologies. We also wanted the participants to be able to question and discuss their concerns about the participatory methods with the producers themselves and learn what these have meant in the execution of their projects so that each person could get what he/she wanted from that experience and then put into practice adaptations or apply principles to improve their performance.

Factors or circumstances (positive and/or negative) in the surroundings that affected advancing toward the accomplishment of the objectives.

Positive:

The willingness of the producers and other participants in the processes from Cauca to participate actively in all the tours

The willingness that the participants had to work hard in order to fulfill the objectives of the workshop

The access to abundant and diverse cases or examples of applying the methods

The majority of the visiting technicians had experience in field work with farmers

Negative:

The difficulties in communication especially after the workshops

Establishing agreements among the parties to agree upon dates for the workshops
Some personal problems among the participants caused difficulties in the application or adaptation of some of the participatory experiences because participatory methodologies were not included in the institution's annual plan.

Lessons learned

The main lessons learned were as follows:

Exchanging ideas and knowledge among the men and women farmers, the participants and project executors and technicians just beginning the participatory processes facilitated their sensitization.

When holding this type of workshop, it is essential to establish specific commitments well ahead of time in order to facilitate the application and/or adaptation of the knowledge acquired

When facilitating these processes of knowledge of new alternatives, it is necessary to check with the participants regarding training needs that arise in order to complement the information received.

By letting the farmers themselves participate as facilitators, showing and teaching their experiences, their knowledge is being valued and their self-esteem is strengthened.

The conceptual and/or personal difficulties or differences among the technician-facilitators within the networks can seriously limit the results in participatory development projects.

For the participatory development of the communities and the strengthening of their organization, it is very important to have among the institutions, entities from both the development and technological sector in order to support or promote the offering of this knowledge through them.

Counting on the power of information and the dissemination of results is a critical factor in community development.

Future plans

What structure has been established to continue this project?

The idea was not really to continue Implementing specific actions in the execution of the project, such as these workshops for sharing information among members of institutions from Central American countries to Colombia. What we hope is that successful experiences such as these or others that occur in other places and possibly in the participants' projects, will also be supported in their diffusion and replication. This type of event is stimulating and permits the participants to learn firsthand about situations different from those that they face daily. They let us explore in greater depth experiences that perhaps in similar conditions or even under more difficult conditions can also obtain good results. The key is to be able to know firsthand the executors and the results and difficulties lived in the field in order to extract the experiences and apply them to ongoing or future projects.

In the future it would be helpful to have an initial survey to be filled out by the participants beforehand in order to determine their expectations. If the survey contains information on the organizations to be visited, their objectives and achievements, the visitors can be much more explicit about specific topics and their needs.

Along these same lines, it is important to come to an agreement with the participants ahead of time, with respect to the commitments and mechanisms that may keep them from applying the adaptations, principles or lessons that they consider relevant in the improvement of their projects.

Recommendations

What recommendations would you make to the other project directors who work in this area or in the Foundation?

New workshops:

There is a need to establish prior commitments more clearly among the participants with respect to what they will do or the proposals for which this type of event is being held.

After the workshops it would be constructive to carry out some type of survey or poll to determine training needs that the group has in order to be able to explore in greater depth the experience lived and apply the methods that could prove useful in their work with communities, improving relevance for they have firsthand opportunity to hear farmers' needs. The incorrect application of a tool or a method can be harmful for both the technician an/or the community.

Communication channels

Define the regional coordinators and their specific commitments to the project to facilitate the process

The lack of habit or nonexistence of communications limits and delays the processes. It is very difficult to communicate via email. On the other hand, the technicians' and professionals lack of a writing habit makes the promotion and diffusion of results complicated.

Support for participatory projects

When beginning participatory processes with rural communities, it is necessary to have technicians with an attitude for and knowledge of participatory methods; otherwise they must be trained. It is important to have prepared and committed persons with community interests that help obtain the desired outcomes. Another important element is the facility for transmitting their knowledge to the key people in the community and for gradually strengthening local capacity and leadership skills in order to empower their project.

The rural development and extension projects should have counterparts in research institutions that have a comparative advantage in the development of technologies, as is the case of computer mediated information centers (usually called "tele-centers"). In this way they can access information of use and interest to the producers, that can help them open doors toward the broadening of their alternatives of production and development; i.e., forming strategic alliances that benefit their clients the farmers.

Highlights

38 CIALs generating alternatives to resolve agricultural and livestock problems in their communities

Abstract

The purpose of creating the CORFOCIAL organization was to bring together all the committee-based research services (CIALs) in the Cauca Province in a second-order nongovernmental organization so that the farmers would have the opportunity of improving their livelihood and economic sustainability in a more organized and efficient manner. The application of participatory methodologies permits the farmers to present demands for research technologies and be the ones to evaluate them in search of better adaptation and greater adoption to their local production systems. CORFOCIAL has a team of farmers trained in the CIAL methodology participatory monitoring and evaluation, where it is proposed to form leadership at the local level so that small farmers can participate more fully in the decision-making and planning in research projects, production and training. Among the more outstanding results are the discovery of new leaders, the recovery of indigenous experimentation, the diversity of crops and the appropriation of the methodology by the communities involved.

Identification of the problem

Most of the time, both the male and female farmers in our country are not considered in the process of generating and transferring technologies. For that reason many small farmers do not follow the technical recommendations, but modify them according to their needs and resources. Thus the methodology of participatory research in the CIAL model is an alternative that permits the farmer to become a main actor in adaptive research.

Background

The menu offering new and innovative technologies is quite large and diverse; nevertheless, the small farmers do not use these technologies in the way in which the scientists expect. There are numerous experiences regarding ignored agronomic recommendations, equipment that was not adopted, varieties that were rejected, etc. On the other hand, other new practices not recommended by scientists pass from farmer to farmer.

Frequently, these initiatives of the farmers have not been foreseen by technicians nor by the professionals trained in traditional approaches to research. Today, however, many professionals believe in the importance of having the active participation of farmers in the different phases of applied research.

Methodology

The methodology used is the application of the eight steps of the research ladder that is used in the CIALs. Each of these steps is carried out with the community:

⁵⁷ Administrator of CORFOCIAL

motivation, election of the committee, diagnosis and feedback; with just the Committee: the planning and setting up of the trial, evaluation of the technologies and analysis of the results.

Activities

In addition to the research activities, the committee should carry out with their community:

Meetings

Tours

Field days

Training of farmers

Results

Food security in the CIAL and its community

Capacity for validating technologies

Integration of the community

Awareness of research as a tool

Strengthened as individuals as a result of training

Capacity for managing external resources

CIAL that are recognized for their work in the region

Creation of new CIALs

Training businesses (accounting, preparation of projects and products)

New leaders in the community

Table 1. Descriptive aspects of the CIALs in Cauca Province and their research topics.

Name of CIAL	Village or Community	Municipality	Date Formed	CIAL		No. Families/Community	Research Topic	Research Stage
				M	F			
Asomuripik	La Peña	Totoró	05/2001	13	3	60	Aromatics	Planning
Betania	Betania	Piendamó	07/91	6	8	33	Sugarcane varieties	Planning
Buнавista	Buнавista	Caldono	06/93			30	Cape gooseberry or <i>uchuva</i> (<i>Physalis peruviana</i> .)	Trial
Campo Alegre	Campo Alegre	Caldono	02/92	6		30	Maize varieties	Commercial
Carpintero	Carpintero	Morales	10/95	20	10	55	Maize varieties	Trial
Chambimbe	Chambimbe	B. Aires	02/96			35	Upland rice varieties	Confirmation
El Jardín	El Jardín	Caldono	09/93			40	Common bean (<i>Phaseolus vulgaris</i>) varieties	Confirmation
El Pinar Hombres	El Pinar	Piendamó	03-00			80	Potato varieties	Trial
El Turco	El Turco	Santander	09/94	5	1	25	Plantain varieties	Confirmation
Esmeralda 1	Esmeralda	Piendamó	11-2001			50	Maize varieties	Production
Esmeralda 2	Esmeralda	Piendamó	11-2001			50	Staking in peas	Production
La Esperanza	Esperanza	Caldono	01-2001	14	6	20	Potato varieties	Production
La María	La María	Piendamó	07/96			60	Maize varieties	Confirmation
La Palma	Esmeralda	B. Aires	04-2001	4	4	35	Soybean varieties	Planning
La Unión 1	La Unión	Piendamó	05-2001	4		53	Maize varieties	Confirmation
La Unión 2	La Unión	Piendamó	05-2001	8		53	Bean varieties	Confirmation
Las Cruces	Las Cruces	Silvia	01/97			50	Bean varieties	Trial
Las Lajas	Las Lajas	Santander	01/2001	7		56	Potato varieties	Confirmation
Pescador	Pescador	Caldono	05/90	5		300	Bean varieties	Trial
San Bosco Muj.	San Bosco	Santander	01-2001		9	60	Potato varieties	Trial
San Bosco Hom.	San Bosco	Santander	02-1991			60	Maize seed prod.	Commercial
San Isidro Muj.	San Isidro	Santander	10/96		7	30	Soy flour bread	Production
San Isidro H	San Isidro	Santander	09/96	5		30	Cassava varieties	Production
Santa Isabel	Santa Isabel	Totoró	10/97			15	Staking in peas	Commercial
La Independ.	La Independ.	Piendamó	2002			45	Diets for guinea pigs	Confirmation
Asopanela	Portachuelo	Rosas	04/92	5		20	Fertilization in sugarcane	Trial
Camposano	Camposano	Timbio	12- 2001	9	5	80	Upland Rice varieties	Confirmation
Cinco Días Muj.	Cinco Días	Timbio	03/92	2	13	120	Soybean varieties,	Commercial

Name of CIAL	Village or Community	Municipality	Date Formed	CIAL		No. Families/Community	Research Topic	Research Stage
				M	F			
							Industrialization	production
El Diviso	El Diviso	Rosas	09/91	4	2	83	Maize varieties, seed	Commercial lots
El Placer	El Placer	El Tambo	08/96	5	5	85	Maize varieties, seed	Commercial lots
Santa María	Santa María	Timbio	03-201	4	3	85	Staking in peas	Production lots
Portachuelo Alto	Portachuelo	Rosas	09-2001	5	1	20	Green bean varieties	Production
El Uvo	El Uvo	Timbio	04-2001	10	6	35	Bean varieties	Production lots
Alto de San José	Alto de San José	Timbio	10-2001	10	2	80	Upland rice varieties	Confirmation
Parraga	Parraga	Rosas	04-2001	4	8	25	Upland rice varieties	Confirmation
Pinar Mujeres	El Pinar	Piendamó	08-2002	5	8	90	Horticulture	Confirmation
San José	San José	Silvia	23-04-2003	6	5	50	Wheat varieties	Trial
La Fortaleza	Carpintero	Morales	08-2002		30	55	Diets for broilers	Production

Lessons learned

The farmers are indigenous researchers.

After training, the farmers become the facilitators, and the degree of responsibility is high.

The CIALs are gradually working towards self-reliance.

The farmers' degree of appropriation of the trials facilitates their independence.

Sharing experiences at the annual meeting strengthens the CIALs.

Delegating functions in the work team (technicians and Guides) creates self-esteem.

CORFOCIAL does not do research in agriculture but extends other services (e.g., writing letters, credit for the CIALs, training).

Recommendations

Strengthen the revolving fund of the CIAL to promote the production and marketing of the products that have been researched by the CIAL.

Strengthen the organization with communication channels for searching for sustainable alternatives

Modify the organic structure for introducing programs, such as that of the rural enterprises and rural development.

Future Plans

CORFOCIAL will have the necessary human, logistical and financial resources to continue and improve research, organization, management, and agricultural and livestock development of the CIALs, within a framework of sustainability and respect for natural resources.

It is very important to expand the number of CIALs.

Prepare a portfolio of services in order to expand training services

Offer a farmers' field school on different topics

Highlight

Groups organized to do participatory research generate mechanisms of self-financing in search of additional sources of income that guarantee the continuity of the participatory process.

Definition of the problem

Among the principal limitations for the small and intermediate potato producers in the Province of Chimborazo is commercialization. The factors that contribute to this situation are, on the one hand, that the farmers do not manage criteria related to quality; that is, they take their product to the market without any type of selection, the potatoes are physically damaged from incidence of pests and pathogens, sizes are nonuniform, varieties are mixed, the tubers are dirty, packing is inadequate, etc. On the other hand, the lack of knowledge of alternate markets for their product and their incapacity to face commercialization individually, added to their incapacity to negotiate, has resulted in their getting low prices for the sale of their product.

Traditionally the objectives of the agricultural research institutions, as is the case of INIAP, have been to increase yields and reduce production costs. However at present other objectives should be added, such as the management of information on markets, improvement of product quality and aggregate value of the production, and better interpretation of the market, its demands and agroindustrial production processes. In the case of potatoes, the use that is given to processed potatoes is constantly growing, the industry demands fairly stable volumes, the raw material needs to meet certain specifications and future demands also need to be known.

Objectives

The general objective is to implement a rural agroenterprise that processes and offers a permanent supply of potatoes suitable for french fries to restaurants and fast food establishments in the city of Riobamba, to benefit the group of women organized in the CIAL "Flor Naciente." The specific objectives are as follows:

- Determine the volume of demand for potatoes for french fries in restaurants and fast food establishments in the city of Riobamba
- Establish criteria for quality and purchasing habits (varieties used, quality, size, likes and preferences, other purchasing alternatives)
- Identify the current supply system to find possibilities of doing business between the small producers and the restaurants and fast food establishments in the city of Riobamba
- Implement and position a rural agroenterprise on the market to offer potatoes for french fries continually

Background

The potato is a basic staple in the family basket of the Ecuadorians. Consumption was 38 kg/yr per capita for the period between 1986 and 1993. The price for potatoes on the Ecuadorian market is highly unstable, which causes insecurity for the producers dedicated to this crop and frequently leads the consumers to decrease their consumption.

⁵⁸ Coordinator, UVTT-Chimborazo, INIAP.

The Ecuadorian society is becoming more urban every year. The data show that while in 1974 the urban population in Ecuador was only 38.4%, in 2002 it had reached 55.4%. At the same time, women have an ever-increasing production role outside the home, which has generated changes in the dietary habits of the Ecuadorian society. The quality of fresh potatoes in wholesale provisioning markets, shops or supermarkets is in most cases poor due to different types of primary and secondary lesions, lack of uniform size and dirtiness in handling the product, resulting in numerous impurities. The habits of potato consumption have expanded, however, and industries offer diverse processed or semiprocessed products that increase the ways in which to consume this tuber.

Of the total volume used by the industry 89% is used for potato chips (smooth or crinkled). The supermarkets also offer peeled, cut, precooked and frozen potatoes, as well as flour for preparing mashed potatoes. This last product is imported from Chile for sale by the supermarkets; however the volume is insignificant, which is the reason why no domestic processor is interested in producing it at the local level. To the extent that the volume of consumption increases, some firm will become interested in this type of processing.

In the Province of Chimborazo the potato continues to be one of the main crops, being both a basic staple and a source of work and income for the population. The tubers are mostly used fresh; in recent years, however, there has been more consumption of processed potatoes; fundamentally fried potatoes (chips and french fries) and, to a lesser extent, other types of products.

In the city of Riobamba the fast food business has been growing so there is an ample market for consuming french-fried potatoes, which are offered by certain places where roasted chicken is sold (more than 380 restaurants). Basically they work on a small scale, serving french-fried potatoes as a side dish for chicken, sausages, meat, etc.

After processing the data compiled on the restaurants and related businesses, it was concluded that the greatest use given to potatoes is in the form of french fries. The second way in which potatoes are used in the restaurants and related businesses is in the form of soups. The third way of offering potatoes to the public is mashed; and in the case of restaurants and related businesses, other important forms of consumption are in salads and tortillas.

In the Guabug community located at an altitude of 3400 m in the parish of San Juan Province of Chimborazo, Ecuador a group of women constituted a CIAL (Local Agricultural Research Committee), which they called "Flor Naciente." In 1996, they were trained in the participatory research methodology to investigate potato varieties that would adapt at the local level (Table 1). After four years the women selected two varieties (INIAP Rosita and INIAP Fripapa) through participatory evaluations. They improved their harvests, but not their income due to the very low price that the middlemen paid them. On holidays the women farmers take the potatoes to the wholesale market. Despite their good quality, the price received does not compensate their investment and effort.

Table 1. Training activities developed with the CIAL.

Events Held	Topic	Objective
Course	Integrated crop management for potatoes	Improve product quality
Observation tour	Visit to share experiences with the IIRR CIALs	Promote self-reliance
Observation tour	Visit to rural agroenterprises in the Province of Bolivar	Motivate the creation of a rural agroenterprise
Meetings	Reflection-action-reflection	Promote and motivate a business-oriented organization in the zone
Participation in agricultural and livestock fairs	Byproducts from potatoes	Promote and motivate business management
Course on processing potatoes	Cutting trials, antioxidants and packaging potatoes	Learn about optimal cutting sizes of potatoes and adequate rates of antioxidants
Short course on processing potatoes	Frying trials with different varieties of potatoes	Identify the best variety and frying times needed to obtain potato chips of better quality
Short course	Learning about tools used to determine supply and demand	Conduct rapid market appraisal

Research questions to be addressed

Does the implementation of a rural agroenterprise for processing and commercializing potatoes responds to the consumption needs of the inhabitants in the city of Riobamba and to the socioeconomic requirements of the CIAL "Flor Naciente"?

How has consumption of potatoes (volumes and varieties) evolved in recent years in the city of Riobamba?

What characteristics should be considered concerning the supply of potatoes to restaurants and fast food establishments in the canton Riobamba?

Methods***Marketing study***

The overall objective of the marketing study was to know the new trends of the market for potatoes by applying surveys to restaurants, roast chicken places and fast food establishments in the city of Riobamba. The specific objectives were to:

Ascertain the current and projected competition of the market for potatoes in the Riobamba canton

Determine the distribution channels of the product that the project offers

Find out the prices of the inputs for potato production

Measure the market potential of potatoes for french fries

Analyze the potential participation in the market

Analyze the prices for commercializing the potatoes

Analyze the competition

Instruments for gathering data. To support the research methods selected, the following research techniques will be used.

Field observations to study the behavior of the market for potatoes in Riobamba

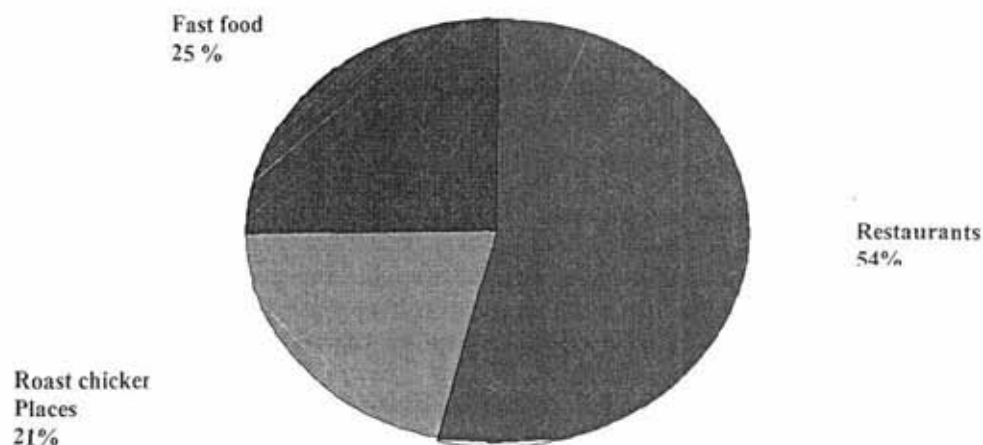
Surveys to be processed with the owners of restaurants and fast food establishments, this technique will help identify the viewpoints of those who are actually involved in the business.

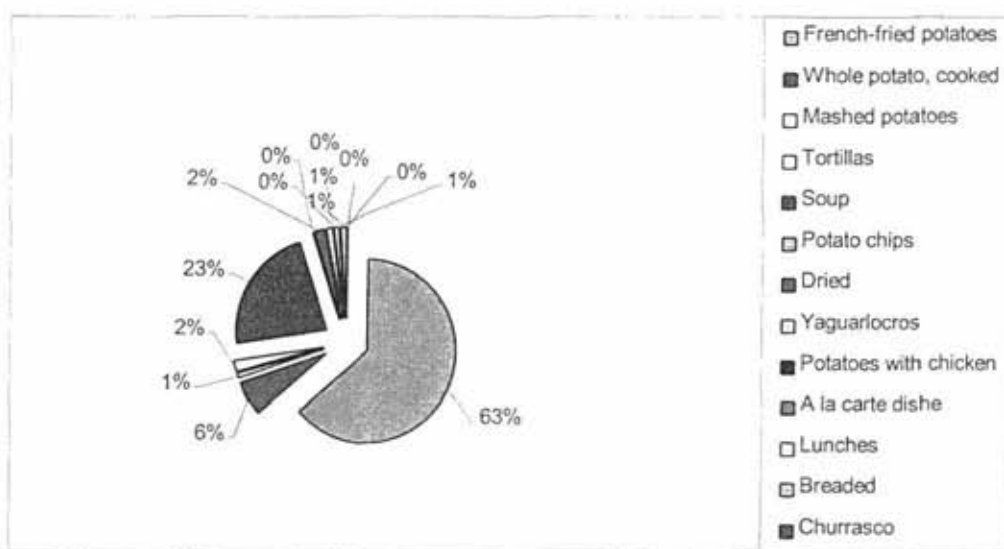
Field work

The surveys will be applied to 100 places where food is sold in the city of Riobamba in accordance with the established census.

Processing and interpretation of results

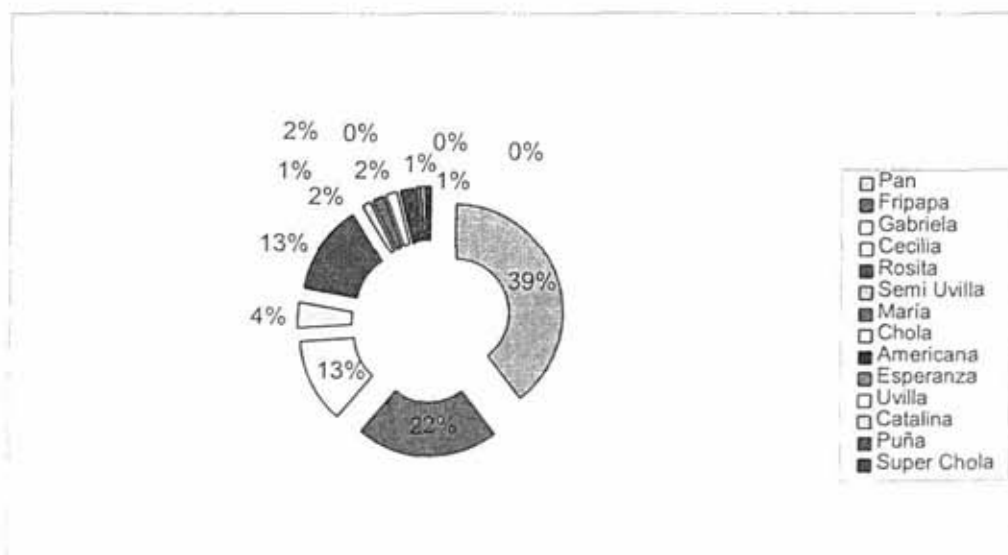
Types of businesses surveyed. With the results of the total sample (100), 54 restaurants, 21 roast chicken places and 25 fast food establishments were surveyed. These correspond to businesses that are commercially active, as there are very small businesses that use or sell very few foods in which potatoes are used.



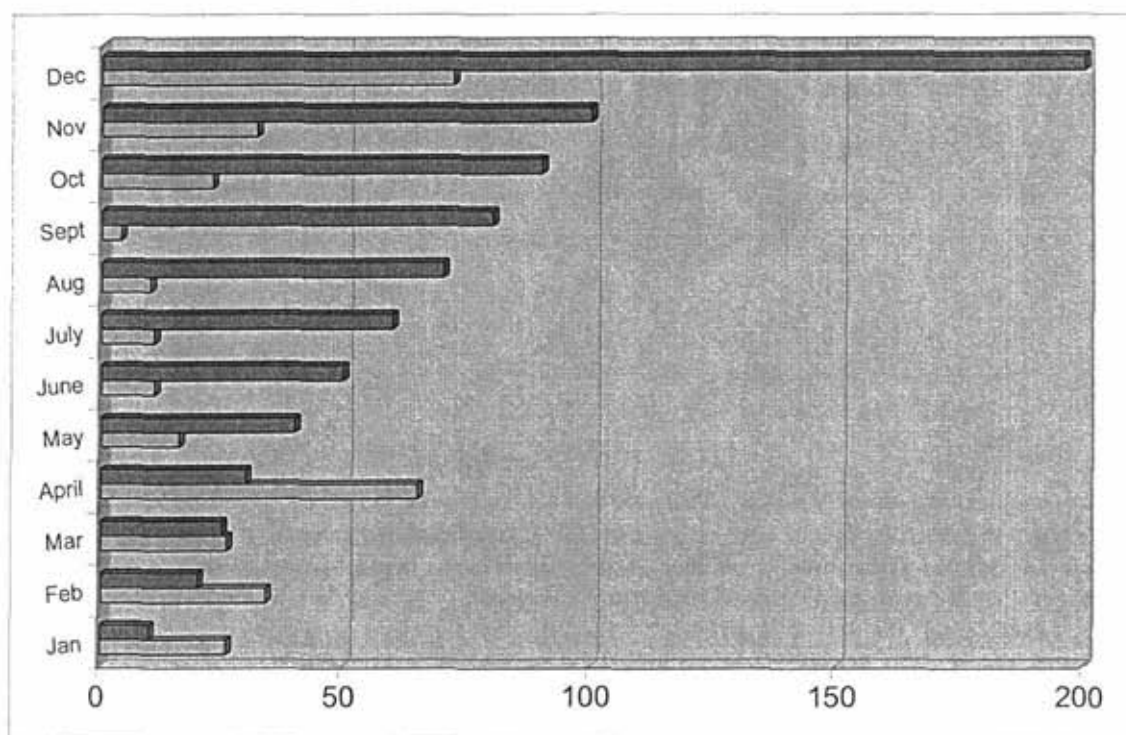


Main products made of potatoes that are offered in the businesses. The businesses offer french-fried potatoes (63%) and in soups (23%), while other points of consumption utilize the whole potato (6%), cooked. Thus there is an opportunity to offer processed products for these businesses throughout the year.

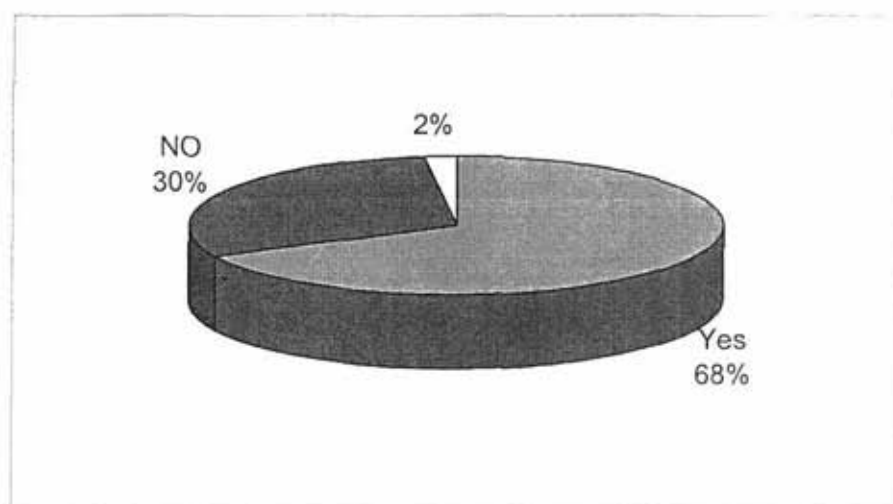
Main varieties of potatoes that they purchase. Among the varieties of potatoes that the businesses buy the most important are Pan (39%) because they do not fall apart when fried; Fripapa (22%), Rosita (13%), Gabriela (12%) and Cecilia (4%). We should highlight that the varieties in greatest demand were selected as the most promising in the CIAL Flor Naciente.



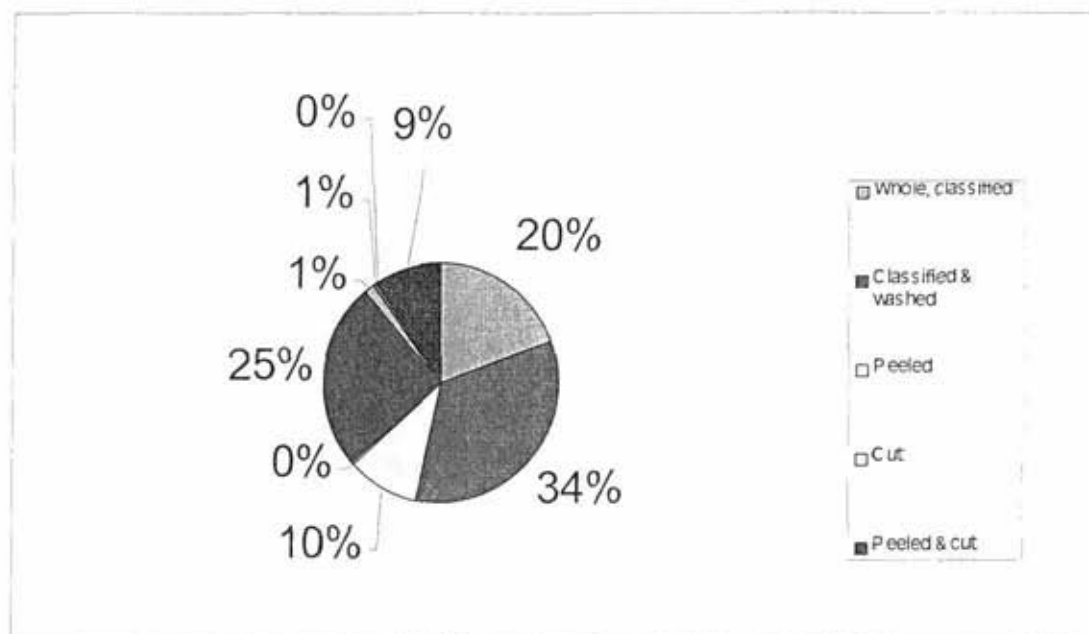
Months of highest sales and percent increase. The months of greatest sale in the year are April (an increase of 30%) and December (100% increase). In the other months, stable growth was maintained without major impact on the normal pattern of behavior of the businesses. This will permit planning the time of planting to have greater production during the months of highest sales.



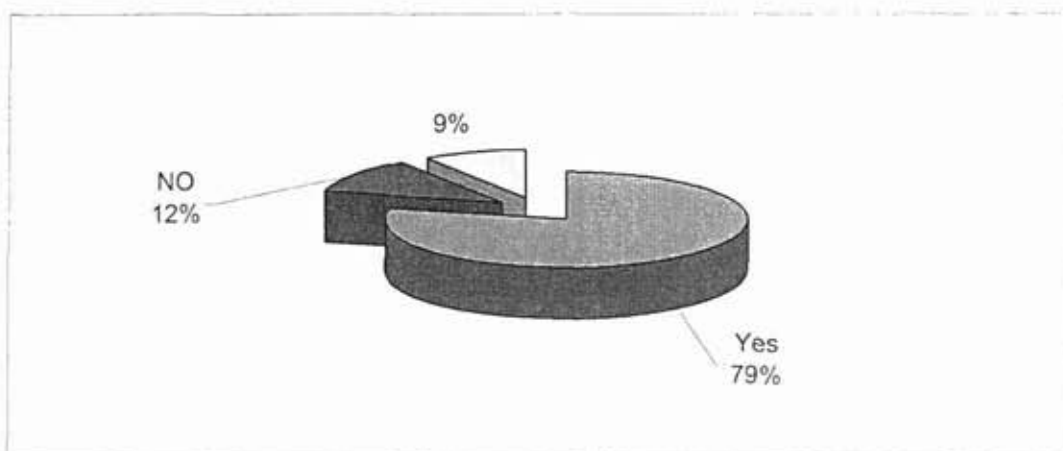
Preference for purchasing the potatoes in other presentations. Among those surveyed, 68% were open to the idea of purchasing potatoes in other presentations such as classified, peeled, washed, thin strips and cubes, 30% preferred the traditional presentation, while 2% of the owners of food stands had no preferences.



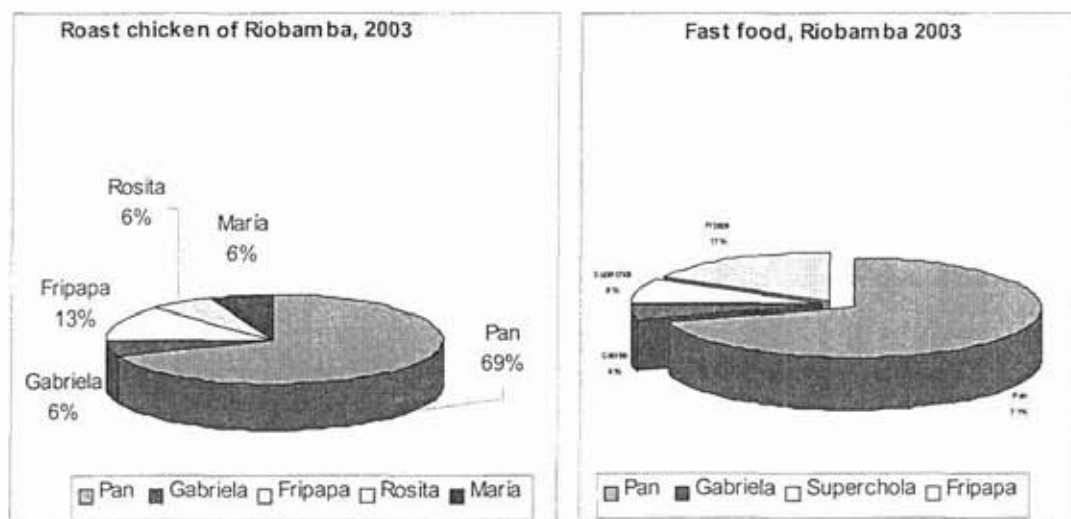
Processing. The type of presentation that the owners of roast chicken places and establishments of fast food would prefer are classified and washed (34%), peeled and cut (25%), whole and classified (20%), peeled (10%), while 9% are indifferent to the type of presentation of the product. Thus there is the possibility of incorporating aggregate value to the product in different presentations.



Willingness to do business with the CIAL Flor Naciente. Of those surveyed, 79% would be willing to do business with the producers who work on the production, processing and commercialization of potatoes; while 12% would stay with their current suppliers, and 9% simply commented on the question. This is an opportunity that would have to be exploited by the CIAL to establish its business.



Processing of the demands



No. of qq of potatoes for french fries/wk in roast chicken places and fast food establishments, Riobamba.

In the roast chicken places potatoes for french fries are consumed weekly in the following amounts for five varieties: Pan (69%), Fripapa (13%) and Rosita, Gabriela and Maria (6% each). The fast food establishments use two varieties: Fripapa (17%) and Pan (71%). The group of producers will be able to offer the varieties they are currently planting and that have suitable characteristics for this type of industry. To improve their income, the CIAL "Flor Naciente" has decided to incorporate aggregate value to the potatoes by offering potatoes peeled and cut in thin strips (french fries) to the roast chicken places and fast food establishments in the city of Riobamba. The aggregate value is a new activity, as no there are similar local experiences; thus it was necessary to investigate new techniques for processing the product, using small-scale tools and equipment. After calculating production costs, the women could obtain a price of \$18.00 for the quintal of potatoes, as shown in Table 2.

Table 2. Rough estimate of the cost of producing 1 kg of potatoes for french fries, CIAL Flor Naciente, Chimborazo.

Line Item	Costs (\$/kg)
1. Production costs	
Raw material	0.16
Antioxidant	0.03
Packaging	0.03
Transportation	0.01
Labor	0.02
Tools	0.02
Subtotal	<u>0.27</u>
2. Income	
Sale of 1 kg of potatoes for french fries	<u>0.40</u>
3. Profits	
Production costs	0.27
Gross profit	0.40
Net profit	<u>0.13</u>

Production of potato chips

The CIAL found that when the potatoes are peeled and cut into thin strips for french fries, 30% of the potato is discarded. This could be given another use, transforming the waste product into potato chips, packed in polyethylene bags for commercializing them at the community level and in the educational centers in the sector as a complementary activity to processing potatoes for french fries and to make efficient use of the raw material.

This activity is also new for the CIAL members. They had to conduct some trials using cottage-scale equipment in order to determine if the activity was profitable. They were able to obtain US\$19.00/kg of potatoes, as shown in Table 3.

Table 3. Approximate costs of small-scale processing of potato chips based on 1 kg of raw material, CIAL Flor Naciente, Chimborazo.

Line Item	Cost \$/kg
1. Production costs	
Raw material	0.114
Day's wages	0.205
Oil	0.057
Gas	0.014
Seasoning (salt)	0.003
Packaging	0.029

Sealer	0.004	
Tools	0.018	
Subtotal	<u>0.442</u>	
2. Income		
Amount of bags from 1 kg of fresh potatoes		5.5 units
Unit cost of sale (\$/unit)	0.10	
Total revenue from sale	<u>0.55</u>	
3. Profits		
Production costs	0.442	
Gross profit	0.55	
Net profit	<u>0.103</u>	

In this way small farmers organized in CIALs can create small rural agroenterprises, generating sources of employment at the local level, improving their income and the livelihood of their families.

Conclusions

Conclusions

The marketing study has been a basic tool for determining the demands and other parameters that are needed to plan strategically the processing and commercialization activities that the CIAL Flor Naciente is undertaking.

To determine the demands, it was necessary to conduct a marketing study, with the support of the IPRA Project at the CIAT through the INIAP-UVTT Chimborazo, the CIAL Flor Naciente and the National University of Chimborazo. It was determined that the potatoes, peeled and cut in the form of french fries to be offered to the roast chicken places and fast food establishments in the city of Riobamba.

The CIAL-Flor Naciente, with the small-scale processing of potatoes and offering two new products (potatoes for french fries and chips) to the consumers of the city of Riobamba and the community of Guabug, respectively, can obtain \$ 19.00/qq of potatoes, which is traditionally sold for a maximum of \$ 5.00/qq.

Lessons learned

The indigenous women in Chimborazo, organized as CIALs, have the capacity to process and commercialize potatoes—an activity that might seem utopian for the rural sector. The CIAL methodology has been the basis for seeking sustainability with other activities complementary to production given that the producers not only need to increase their production but also seek their economic welfare.

The women organized in the rural sector have also been actors in their own development.

The development and implementation of a new participatory method generated innovations among the different production actors (generation of capacities and leadership).

Recommendations

Legalize the organization as a rural agroenterprise so that it can gain access to other services such as credit and training

Support the preparation of proposals to seek funding to make the a processing center and sales point of their products suitable.

They need to make strategic alliances so that the organization has access to training in business management and basic bookkeeping.

The participatory research and evaluation should continue being the basic tools so that the organization continues to explore new techniques that will let them maintain technological options according to the needs that arise.

Abstract

Young people in rural areas of developing countries are not exempt from the problems of the rural communities in general, including the lack of access to land, inadequate education and training, low prices for farm products, poor market infrastructure, low level of technology, limitations in the credit and poor participation in community activities. In Colombia one of the problems that affects rural youth is the inadequate education system because the curriculum has a clearly urban orientation, which does not stimulate the young to do research on their ecosystem. In this project the IPRA Project proposes to stimulate the research capacity of rural youth on the topic related to the food security of their communities. To this end, presentations were made, and training was imparted on participatory methodologies such as the community-based research services (CIALs), where the students decide what to investigate, as well as plan, execute and evaluate the alternatives proposed by them. It is expected that in the short term, a research habit will be formed in the school that will stimulate the director and staff of the school Juan Salvador Gaviota⁶⁰ to include these participatory methodologies within the academic curriculum, contributing to the creation of a strengthened academic model to be put into practice in the education of rural youth and that it be, at the same time, sustainable over time.

Background

There is a very serious problem in many countries of the world, which is the lack of opportunities for young people. The rural youth are being prepared better than their parents because they have easier access to schooling, but they run into the problem that society does not offer them opportunities for developing their capacities. It is common to find young people unemployed in the field; and when they migrate to the cities, the possibilities of work are very scarce.

Introduction

For some time the W.K. Kellogg Foundation has supported projects that train the young. In the year 2000 the project "Communities and Watersheds," in collaboration with the IPRA Project, sent a proposal to the Kellogg Foundation to develop a project with young students, La Hondura (El Dovio township), a community that is found in a mountainous zone, where the farmers grow plantains, a little maize and common beans.

General objective

In a period of three years, it is expected that the young people from the region of the Canyon of the Garrapatas River and the group "Heirs of the Planet" in Bellavista, will improve their access to high-quality education to stimulate their personal development and improve the conditions of their natural and physical surroundings through research processes.

Justification

⁵⁹ Professional specialist, SN-3 Project, CIAT, Colombia

⁶⁰ Jonathan Livingston Seagull.

Principles of the project

Education is a fundamental component for rural development.

Innovative, integrative, collaborative and sustainable forms of providing education for rural youth are required.

Young people have a great interest in science, innovation and teamwork.

Rural youth need to explore new strategies to improve their living conditions.

The sustainable management of natural resources (soils, water, forests, climate and biodiversity) can contribute to improving the living conditions of the rural communities.

Specific objectives

Facilitate the emergence of young leaders who have not yet developed their potential through the development of communication skills, teamwork and management of information systems. The groups of participants will share their experiences, history and have the opportunity to reflect on the lessons learned.

Establish alliances among the groups of rural youth and schools, universities, research center and businesses that facilitate the research processes and development in which the rural youth are interested.

Establish self-financing mechanisms for the members of youth groups or other groups that wish to continue their studies or establish businesses where they can apply the knowledge acquired and improve their income.

In accordance with the results obtained in the development of the project, we expect to develop among all the participants, a model that can be extrapolated to other regions. This model should provide the tools so that these young people become active participants in the management of natural resources and in the improvement of their living conditions. This objective includes the establishment of a participatory monitoring and evaluation system so that the participants acquire the habit of following up the progress made in their projects.

Project partners

ACERG - Association of Educational Centers in the Canyon of the Garrapatas River.

Brings together 37 primary and secondary schools located in the watershed of the Garrapatas River, with the mission of working as a team to strengthen the educational program based on three complementary principles: agroecology, agricultural (production-oriented) schools and education compatible with the ethnic diversity of the region.

Heirs of the Planet - Youth, Life and Nature of Bellavista is a group formed by 37 children and young people dedicated to the research and conservation of the natural resources of their region. They form part of a network of 16 similar groups in Colombia.

CIPAV - Center for Research on Sustainable Agricultural and Production Systems. Its objective is to investigate and promote the use of efficient and sustainable systems

for using the natural and human resources available, in harmony with the environment.

CIAT - International Center of Tropical Agriculture is oriented toward the reduction of hunger and poverty in the Tropics through collaborative research that improves agricultural productivity and the management of natural resources.

Methodology

This project is based on the application of participatory methods, in which the participants take part in the decision-making in all the processes in which they will be involved. In addition, the methodology of the community-based research services CIALs (participatory diagnoses, participatory evaluations of the technology being tested) will be applied, as well as the concepts of participatory models for natural resource management and conservation.

All these methodologies were discussed in meetings with the young people from the school in La Hondura, where the IPRA methodology was presented and discussed.

Activities

Participatory diagnosis with the students of the Juan Salvador Gaviota school
Reading of the CIAL handbooks that explain the concept of research and the CIAL methodology

Election of the members for the Committees on common beans, maize and rice on 6 February

Workshop at CIAT on participatory research, 6 May

Planting of trials with the students from the school, 24 April

Training on the use of the "smiley faces" format for the CIALs and evaluation of the different trials with the students, 11 June

Training on the principal pests and diseases of common beans in the coffee-growing zone and postharvest management for the CIAL members, students and teachers of the school Juan Salvador Gaviota, June 11.



Photo No.1: Martha Rodríguez and Leandro Muñoz, members of the CIAL, on their bean experimentation plot.



Photo No.2: Technical from IPRA Project with member of the CIAL, School Juan Salvador Gaviota.

teachers and students of Juan Salvador Gaviota. In order to begin planning the project, a meeting was organized at CIAT with the teachers, director and staff of the school and the different members of the CIAT projects "Communities and Watersheds" and IPRA

who participate in this project. At this meeting all the participants voiced their concerns and expectations with respect to the project. Presentations were also made about the mission and the participatory methodologies used in the two CIAT Projects involved in this project.

Later, a similar meeting was held with 30 students in Juan Salvador Gaviota School. In that same meeting food security was defined as one of the objectives relevant for them. For that reason, the CIAL methodology was shared with them, and the possible commitments and responsibilities for establishing the committee were presented. The purpose of this meeting is "Motivation." Once the students decided to form their own Research Committee, it was agreed to program the date of the meeting for electing the members, Leader, Secretary, Treasurer and Extension agent (Table 1).

La Honduras, the community where the school is found, culturally has a high index of common bean and maize consumption; thus it can be affirmed that they are the principal staples of the region. When the meeting was held for the participatory diagnosis and to select the topic to be researched by the CIALs, the students had already elected by consensus the topics that they wanted to investigate. They decided to form a CIAL to investigate maize varieties that were more early-maturing than the regional variety (i.e. can be harvested at 6 mo).

Another CIAL committee was also created that wanted to identify common bean varieties more resistant to common diseases in the zone such as Ascochyta, web blight, anthracnose and angular leaf spot, as well as pests such as leaf eaters. There were 23 students at the diagnosis meeting. Another committee was also created to evaluate upland rice materials. Thus the three committees are trying to conduct research on different alternatives of interest to the community and seek to identify solutions to problems in their production systems.

Table 1. Participation of students in the meetings.

ACTIVITY	STUDENTS (No.)
Motivation	30
Election of the CIAL Committee	25
Diagnosis	23
Planning	12
Planting the trial	5
Training	15

At the meeting for planning the trials of common beans, maize and rice, 12 student members of the CIALs attended. They agreed to plant plots (4 rows, 4 m long) with three replications in different parts of the community. For fertilizer, it was agreed to apply at planting "Bocashi," an organic product that they are learning to make at school. It is low in cost because the ingredients are from the region; moreover, it is a new alternative to the expensive chemical fertilizers that are traditional in the region, costing US\$16/50-kg sack of 10-30-10.

The CIAL doing research on common beans planted the variety ICA Catío, supplied by the CIAL in Pescador (Cauca), and the varieties supplied by the CIAT Common Bean Project: AFR 612, AFR 298, Cal 96, Cal 143 and regional Guarzo.

In maize they planted the varieties supplied by the CIAL-San Bosco (Cauca) called Yunga and SiKuani; and the farmers from La Honduras got the regional maize to

compare its performance (the yellow check). The CIAL working on upland rice planted the varieties CIRAD 396, IRAT 216 and IRAT 13, provided by the CIRAD Rice Project at CIAT.

In order for the students to be able to identify the commonest pests and diseases that are attacking native bean varieties in their region and at the same time determine which of the new varieties that they are studying in the CIAL are more susceptible or tolerant, training on this topic was provided for 15 students from the school. The methodology used was a slide presentation in the classroom, followed by a visit to the CIAL trial, planted at the school, where the students could identify the commonest diseases in the zone such as anthracnose

(*Colletotrichum Lindemuthianum*), *Ascochyta* (*Ascochyta phaseolorum*) and web blight (*Thanatephorus cucumeris*).

Through the CIAL trials the students now have a clearer concept of what research is and why one should first plant in small plots rather than in large lots. There is great sense of empowerment as they realize that their trials are providing important information for transmitting to their community.

The committees were also trained to manage the format of closed evaluations (smiley faces) to evaluate the alternatives being tested. When the common bean varieties began to reach maturity, an evaluation practice was done with the students so that they could become familiar with the format and begin to understand the importance of recording the criteria used to evaluate the different varieties and observe which would be the best ones to continue planting, for common beans as well as maize and rice.

Conclusions

As a result of the practice in the trials and strengthening the students' research capacities in school, both the students and some of their parents wish to plant more trials on their farms. Thus local research has been stimulated.

Training young students on the scientific method is easier and the learning is more rapid than adults. This can be seen in the way that the students caught on to the different concepts and scientific terms used in this training.

Despite their age, the students showed a high degree of responsibility in taking care of the trials.

The children are very aware of the problems in their homes, primarily the lack of food and of the opportunities for them in the immediate future. They want to do research to help find new alternatives for generating income on their farms for their parents.

At the end of the school period, it was noted that there was instability among the people who formed part of the CIAL as a result of which some students did not want to continue for lack of support from the teachers of the school. In view of this weak, the Project named a person to provide more continuous support to the CIALs.

It was observed that the students wanted to plant the trials on their farms with their parents because there they have the collaboration of their parents, brothers and sisters. This might possibly be a new model to be tested the second semester of 2003.

The CIAL system of research has motivated the students to read, go to the CIAT library to do research, communicate more with CIAT researchers, and feel very proud to show their trials.

The technicians are setting up their own trials, independent of the CIAL trial.

This has created a lot of expectations among the young people regarding the future, and they ask questions such as: What are we going to do now? ¿What comes next?

OUTPUT 7. CAPACITY OF THE SN-3 TEAM, STRENGTHENED

Milestones

Team capacity and skills, enhanced

FPR team attendance at training events during the working year 2001-2002

In an effort to strengthen the SN-3 team members with respect to their knowledge and skills, training opportunities were offered. This year members of the team participated in the events shown in Table 1.

Table 1. Information on courses in which SN-3 team members participated.

Date	Topic	Taught by
Feb. 14	Highlights of consultancy on mechanisms for self-financing	Carlos A. Quirós
Feb. 14	Thesis project: "Identification and analysis of the organizational and production principles of 4 CIALs with rural agroenterprises in Cauca Province	Fanory Cobo
April 11	Report on results obtained in the PME course in Bolivia	Luis Alfredo Hernández, Elias Claros
May 3 - 12	International Workshop on Under-utilised Plant species, Leipzig/ Germany.	Susan Kaaria
July 4	Methodological proposal for conducting the impact study in 13 CIALs in Cauca	Susan Kaaria
July 8	Presentation of results of the impact study in five CIALs in Cauca	Fernando Hincapié
July 12 - 27	Training Programme "Dealing with data from participatory studies: Bridging the gap between qualitative and quantitative m.	Susan Kaaria
August 16 - 22	25th International Conference of IAAE, Durban, South Africa	Susan Kaaria
Sept. 10	Experiences in applying PME in CIALs in Cauca	Luis A. Hernández R

STAFF		
Researchers and support staff: position and time fraction		
Carlos Arturo Quirós	Acting Project Manager, Research Associate I,	100%
Boru Douthwaute	Senior Staff	100%
Susan Kaaria	Senior Research Fellow	100%
Vicente Zapata	Senior Research Fellow	50%
Luis Alfredo Hernández	Research Associate I	100%
José Ignacio Roa	Professional Specialist	100%
Pascal Sanginga	Senior Research Fellow	100%
Colletha Chitsike	Senior Research Fellow	100%
Elias Claros	Research Assistant	100%
Fernando Hincapié	Research Assistant	100%
Viviana Sandoval	Assistant	100%
Jorge Luis Cabrera	Technician I	100%
Luisa F Lozano	Secretary V	100%
Fredy Escobar	Technician II	70%
Fanory Cobo	Student	50%
Juan Camilo Cock	Consultant	

DONORS SN3

BMZ - Der Bundesminister für Wirtschaftliche Zusammenarbeit, Germany
 WK Kellogg Foundation, Michigan
 DFID Department for International Development
 Government of Belgium
 Rockefeller Foundation

APENDIX

Acronyms and Abbreviations

ACDI-VOCA	Agencia Canadiense para el desarrollo Internacional
ACERG	Association of Educational Centers in the Canyon of the Garrapatas River
ACIN	Asociación de cabildos Indígenas de Norte del Cauca (Colombia)
ACISAM	Asociación de capacitación e Investigación para la salud mental
ADDAC	Asociación para el Sector Agropecuario (Ecuador)
	África 2000 Network
	Africare
	Agricultural Development Programme
	Agricultural Research Development Centres
	Agricultural Technology System
AMNLAE	Asociación de mujeres Nicaragüenses Luisa Fernanda Espinoza
APEDSAF	Asociación para el desarrollo Sostenible Agropecuario y Forestal.
ARDCs	Agricultural Research and Development Centers (Uganda)
ASAR	Asociación de Servicios Artesanales Rurales
ASERCA	Asociación de Empresarios Agroindustriales de la Sub-Cuenca del Río Cabuyal
ASOBESURCA	Asociación de Beneficiarios de la Subcuenca del Río Cabuyal (Colombia)
ASOCIALs	Asociación de CIALs (Honduras)
ASOHCIAL	Asociación Hondureña de CIALs (Honduras)
ATICA	Agua y Tierra Campesina
BANDURAL	Banco de Desarrollo Rural sociedad anónima (Guatemala)
BAPPA	<i>Beyond Agricultural Productivity to Poverty Alleviation</i>
CAD	Centro de apoyo al Desarrollo
CARE	Cooperative for American Relief Everywhere
CEDIR	Centro Ecuatoriano de Desarrollo Rural
CEED	Centre for Entrepreneurship & Economic Development
CESA	Central Ecuatoriana de Servicios Agrícolas
CGIAR	Consultative Group on International Agricultural Research
CGIAR	Consultative Group for International Agricultural Research (USA)
CIAL	Comité de Investigación Agrícola Local (Colombia)
CIAT- IPRA	Investigación Participativa CIAT (Colombia)
CIAT-S.C-	Centro de investigación Agrícola Tropical, Santa Cruz Bolivia
CICDA	Centro Internacional de Desarrollo Americano (Ecuador)
CIDA	Canadian International Development Agency
CIER	Centro de Investigación Ecoregional para el Desarrollo
CIOEC	Coordinadora de Integración de Organizaciones Económicas Campesinas de Bolivia
CIPASLA	Consorcio Interinstitucional para una Agricultura Sostenible en Laderas (Colombia)
CIPAV	Center for Research on Sustainable Agricultural and Production Systems
CIRAD	Centro de cooperación de investigación agronómica para el desarrollo (Francia)
CISAS	Centro de Información y Servicios de Asesoría en Salud (Nicaragua)
CNPMF.	Centro Nacional de Pesquisa de Mandioca e Fruticultura Brasil
COCODE	Community Development Councils with emphasis on the community (Guatemala)
	Communities and Watersheds/CIAT
CONDESAN	Consorcio para el desarrollo sostenible de la ecorregión Andina

CORDES	Fundación para la cooperación y el desarrollo comunal de El Salvador
CORFOCIAL	Corporación para el Fomento de los Comités de Investigación Agrícola Local (Colombia)
CORPOICA	Corporación Colombiana de Investigación Agropecuaria
CORPOTUNIA	Corporación para el Desarrollo de Tunia (Colombia)
CUNOR	Centro Universitario del Norte (Guatemala)
DALDO	District Dept. of Agricultural & Livestock Development
DARS	Department of Agricultural Research Services, Malawi
DDT	Dirección de Desarrollo Tecnológico de Bolivia
DFID	Dept. of Sociology/Anthropology, University of Guelph
DILPE	Department for International Development (UK)
	Directorio Local de Promoción Económica (Bolivia)
	District Agricultural and Livestock Development Office
	District Extension Coordinators
EAP-Zamorano	Escuela Agrícola Panamericana, El Zamorano (Honduras)
EAT	Enviroment Action Team
EMBRAPA	Empresa bresilera de pesquisa agropecuaria
FAO	Naciones Unidas para la Agricultura y la Alimentación Italy)
	FCAP-UMSS Universidad San Simón- INNOVA
FDTAs	Fundaciones para el Desarrollo Tecnológico Agropecuario (Bolivia)
FDTA-Valles	Fundación para el desarrollo tecnológico agropecuario de los Valles, Bolivia
FEDEPANELA	Federación Nacional de Productores Paneleros.
FIDAMERICA	Fondo Internacional de desarrollo Agrícola para América Latina y el Caribe
FIPAH	Fundación para la Investigación Participativa con Agricultores en Honduras (antes IPCA Honduras)
FOCAM	Proyecto Fomentando Cambios, IPRA/CIAT Bolivia
FONDESOY	Fondo de Contrapartida para el desarrollo de Soyapango.
FUNAN	Fundación ANTISANA.
FUNCOD	Fundación Nicaragüense para la conservación y el desarrollo.
FUNDEMI	Fundación para el Desarrollo y Educación de la Mujer
FUNPROCOOP	Fondo de Contrapartida para el Desarrollo de Soyapango (El Salvador)
FUSAI	Fundación Salvadoreña de Apoyo Integral
	Future Harvest Centers
GATE	German Appropriate Technology Exchange
	Gobernación Dptal. de Alta Verapaz
GRUYA	Cassava Group and Associated
	Heirs of the Planet - Youth, Life and Nature of Bellavista
ICA	Instituto Colombiano Agropecuario
ICRAF	International Center for Research in Agroforestry Nairobi, Kenya
IFAD	International Fund for Agricultural Development).
IFPRI	International Food Policy Research Institute
IIED	International Institute for Environment and Development London
	Imperial College of England
INCAP	Instituto de Nutrición de Centroamérica y Panamá
INCORA	Colombian Institute of Agrarian Reform
INIAP	Instituto Nacional de Investigaciones Agropecuarias (Ecuador)
INSPIRE	Integrated Soil Productivity Initiative Through Research and Education
	Instituto de investigaciones ambientales del pacífico
INTA	Instituto Nacional de Tecnología Agropecuaria, Nicaragua
INTEP	Instituto de Educación Técnica Profesional
IPRA-BOLIVIA	Investgación Participativa con agricultores (PROINPA, Bolivia)
ISAT	Information and Advisory Service on Appropriate Technology
JAINA	Comunidad de estudios Jaina

KARI	Kenya Agricultural Research Institute Katamata Farmers group Land Tenure Center, University of Wisconsin-Madison Lilongwe Agricultural Development Division
MACIA	Ministerio de Agricultura campesina y del medio Ambiente (Bolivia)
MAG	Ministerio de Agricultura y Ganaderia (Ecuador)
MANRECUR	Proyecto de Manejo de Recursos Naturales (Ecuador) Ministerio de Desarrollo Sostenible Bolivia Ministry of Agriculture, Dept. of Agricultural Research & Technical Services, Dept. of Agricultural Extension (Malawi)
NAADs	National Agricultural Advisory Services
NARO	National agricultural research organization
NARS	National agricultural research National Agricultural Advisory Services National Agricultural Research Organization) Organisations to develop adaptive research projects Organisations to develop agricultural technological
PACOFOR	Proyecto de Desarrollo de la Participación Comunitaria en el Sector Forestal
PELUM	Participatory Ecological Land Use Management
PESA	Programa Especial de Seguridad Alimentaria de Ecuador
PIENs	Proyectos de Innovación Estratégica Nacional Plan International Malawi
PNUD	Programa de las Naciones Unidas para el Desarrollo
PREDUZA	Proyecto De Resistencia Duradera Para La Zona Andina Prefectura Tarija
PRGA CGIAR	Systemwide Program on Participatory Research and Gender Analysis
PRODESSA	Proyecto de desarrollo de San Dionisio (Nicaragua)
PRODII	Programa de Desarrollo Integral Interdisciplinario
PROINPA	Fundación para Promoción e Investigación de Productos Andinos (Bolivia) Projects of National Strategic Innovation
PROLADE	Proyecto laderas en los valles andinos Bolivia
PROMETA	Proyecto Mejoramiento tracción Animal
PRONATTA	Programa nacional de transferencia y tecnología agropecuario (Colombia)
PROSUKO	Programa Interinstitucional de Subakollos
Proyecto CALL	Proyecto Corpo-Buenos Aires en el Depto del Cauca. Proyecto INNOVA
PRR	Programa de Reconstrucción Rural (Honduras)
SECAP	Servicios Ecuatoriano de Capacitación Profesional (Ecuador)
SEDAL	Servicios para el Desarrollo Alternativo (Ecuador) Seed Production Association
SELVA	Asociación "Somos ecologistas en lucha por la vida y el ambiente
SENA	Servicio Nacional de Aprendizaje (Colombia)
SETAGRO	Servicios Técnicos Agropecuarios
SIBTA	Sistema Boliviano de Tecnología Agropecuaria
SOL	Supermarket of Options for Hillsides
SP-PRGA	Systemwide Program on Participatory Research and Gender Analysis Program (CIAT)
SWNM	Systemwide program on Soil Water and Nutrient Management
TIP	Traditional Irrigation and Environmental Improvement Programme
TROPILECHE	Consorcio, Sistemas de alimentación con leguminosas para Intensificar
TSBF	Africa soil fertility network

TSBF	Tropical Soil Biology and Fertility Institute
TUCAYTA	Corporación de Organizaciones Campesinas (Ecuador)
UCRES	Unión de comunidades rurales del norte de El Salvador
UMATA	Uganda National Potato
UMSS	Unidad Municipal de Asistencia Tecnológica Agropecuaria
UNDP	Universidad Mayor de San Simón Bolivia
UNDPT	United nations development programme
	Unit of Political of Technological Development UPDT
	Unión General Obrera, Campesina y Popular México
	Universidad Católica de Ibarra. Ecuador
	Universidad Nacional Autónoma de Nicaragua, León
USAID	Agencia de los Estados Unidos para el Desarrollo Internacional
UTA	Unidad Tecnológica Agropecuaria Tarija
UVTT	Unidades de Validación y Transferencia de Tecnología, Chimborazo.
VIRUDI	Vision for Rural Development Initiatives
WKK	The Kellogg Foundation
	World Vision

Abreviations

AGM03	Annual General Meeting
AHI	Africa Highlands Initiative
APG:	Asamblea del pueblo Guaraní
ATDT	Project in Rwanda
CBOs	Community-based organizations
CMAD	Communitte Against Desertification
CSOs	Civil Society Organizations
ERI	Enabling Rural Innovation
FCAP	Facultad de Ciencias Agropecuarias
FFS	Farming Field School
FGDs	focus group discussions
FPR	Farmer participatory research
FRG	Formation of farmer research and market research groups
FTDA	Fundaciones Tecnológicas de Desarrollo Agropecuario (Bolivia)
GEC	Groups Evaluating Clones
GEM	Gender evaluation methodology
GFAR	Global Forum for Agricultural Research
GGUSA	Grupo Gestor para el desarrollo del Valle de San Andrés
GNTF	Grupo Nacional de Trabajo para la Participación.
GTZ	Sociedad Alemana para la Cooperación Técnica
IAEM	Integrated agro ecosystem management and conservation
IAM	Integrated Agroecosystem Management
ICTs	Information and communication technologies
IIED	International Institute for Environment and Development
INM	Integrated nutrient management
IPM	Integrated pest management
JACs	Local Administrative Committees
LADD	Lilongwe Agricultural Development División, Malawi
M&E	Monitoring and evaluation
NGO	Non governmental organization
NRM	Natural resource management
PCA	Principal components analysis
PCB	Participatory research in cassava breeding
PD	Participatory diagnoses
PET	Participatory evaluation of technologies

PIM	Participatory impact monitoring
PITAs	Proyectos de Innovación Tecnológica Aplicada, Bolivia
PM&E	Participatory monitoring and evaluation
PME	Participatory monitoring and evaluation systems
PMR	Participatory Market Research
PPB	Participatory Plant Breeding
PPSF	Participatory procedures applied to the development and selection of forage technologies
PR	Participatory Research
PRAs	Participatory rural appraisals
R&D	Research and Development
RAE	Rural Agro-Enterprise .
RD&TT	Research development and technology transfer
R-to-C	Resource to consumption
SG	Stakeholder groups

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Project SN-4

Information and Communications for Rural Communities (InforCom)

Project SN-4: Information and Communications for Rural Communities

Objective:

To strengthen rural communities' capacity for innovation by better enabling them to obtain, generate, and share information and knowledge, with the aid of modern information and communications technologies (ICTs).

Outputs:

Computer-based distance-education (e-learning) programs, multimedia products on CD-ROM, and printed materials that convey science-based knowledge and methods in forms that are useful for development professionals

Proven approaches and tools for finding and obtaining agricultural information, especially via the Web

Community telecenter models for providing connectivity and building local capacity to use ICTs for rural innovation

Approaches for creating a local culture of knowledge discovery and sharing, with the aid of new ICTs linked to other communications media

Approaches for stimulating the development of local content that is relevant to rural innovation

Milestones:

- 2004 Efforts under way in Colombia, at least one other Andean country, and in two Central American countries to incorporate the use of ICTs into rural development, with particular emphasis on support for small agroenterprises. Four e-learning courses completed and at least one multimedia training tool under development. New collaborative arrangements established in Colombia for improving access to agricultural information.
- 2005 Regional projects on ICTs for development under way in Latin America and East Africa. Local information systems and communications groups created and operating in both those regions. Further e-learning courses and multimedia products developed.

Users:

The primary users of the project's outputs will be development professionals and community leaders associated with local organizations (particularly farmer groups, NGOs, and rural schools). These persons will acquire new tools and approaches that better enable them to help rural people create useful knowledge and improve services needed for solving problems and acting on new opportunities in agriculture.

Collaborators: SN-4 is building alliances with various international organizations that support the use of ICTs for development, including Canada's Institute for Connectivity in the Americas (ICA), Fundación Chasquinet (a Latin American initiative based in Ecuador), and the global Association for Progressive Communication (APC). In addition to profiting from these organizations' experience and expertise, CIAT can tap into their networks of local partners in developing countries.

CGIAR system linkages: Training (30%); Information (60%); Organization and Management (5%); Networks (5%).

CIAT project linkages: SN-4 will provide all Center projects with new means of increasing research impact and obtaining feedback on research products from rural people. The project should be particularly useful to CIAT's new Rural Innovation Institute (RII) as a means of

strengthening participatory approaches to agroenterprise development, local adaptive research, community-based watershed management and rural planning.

<i>Narrative summary</i>	Measurable Indicators	Means of verification	Important assumptions
<p>Goal</p> <p>To help the rural poor build sustainable livelihoods by improving the flow of genuinely relevant information among rural communities and research and development (R&D) organizations.</p>	<p>Increased occurrence of technical and social innovation in target rural communities.</p> <p>Increased opportunities for off-farm activities that generate income and employment.</p>	<p>Impact evaluation within a sustainable livelihoods framework, based on household surveys, interviews with key informants, and group techniques in target rural communities.</p>	
<p>Purpose</p> <p>To strengthen rural communities' capacity for innovation by better enabling them to obtain, generate, and share information and knowledge, with the aid of modern information and communications technologies (ICTs).</p>	<p>New options for enhancing livelihoods identified by individuals and organizations in rural communities through improved information access.</p> <p>Stronger planning and problem-solving capacities in rural communities, based on improved electronic communications both among communities and with R&D organizations.</p> <p>A greater capacity in local organizations to satisfy information demand in rural communities.</p>	<p>Case studies on the use of information obtained with the aid of ICTs in target rural communities.</p> <p>Impact evaluation of Web-based information applications developed by local organizations.</p>	<p>Rural communities can obtain affordable, reliable access to the Internet.</p> <p>National and local organizations commit themselves to providing rural communities with relevant information services.</p> <p>Rural communities prove receptive to a new information culture based on the use of modern ICTs.</p> <p>Systems for continuous monitoring and evaluation adopted by organizations hosting rural community telecenters.</p>
<p>Outputs</p> <p>Computer-based distance-education (e-learning) programs, multimedia products on CD-ROM, and printed materials that convey science-based knowledge and methods in forms that are useful for development professionals.</p> <p>Proven approaches and tools for</p>	<p>E-learning programs under way and multimedia products available to partners.</p> <p>Diverse clients (from researchers to telecenter operators) more effectively obtaining information and using it in their work.</p> <p>Financially and socially sustainable telecenters established by local</p>	<p>On-line evaluation of e-learning programs.</p> <p>Training tools available in print form and on CD-ROM.</p> <p>Locally developed information systems available on the World Wide Web.</p> <p>Consultancy reports and project information on the Web and in print form.</p> <p>Conference papers, journal</p>	<p>Public and private telecommunications agencies support initiatives to create affordable, reliable Internet access in remote rural areas.</p> <p>National and local organizations can generate resources through information services that enable them to sustain these services.</p> <p>National and local organizations</p>

<p>finding and obtaining agricultural information, especially via the Web.</p> <p>Community telecenter models for providing connectivity and building a local capacity to use ICTs for rural innovation.</p> <p>Approaches for creating a local culture of knowledge discovery and sharing, with the aid of new ICTs linked to other communications media.</p> <p>Approaches for stimulating the development of local content that is relevant to rural innovation.</p>	<p>organizations, with the aid of training tools developed by CIAT.</p> <p>Local communications groups formed in target communities and providing effective information services to rural communities.</p> <p>Dynamic, Web-based information systems (integrated with conventional communications media) developed by local organizations that have received training and other support from the Center.</p>	<p>articles, and technical reports on the performance and impact of approaches developed by the project.</p>	<p>gain credibility in rural communities as reliable providers of useful Web-based information services.</p>
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Introduction

It is difficult to imagine how millions of rural families in the tropics can achieve sustainable livelihoods as long as their access to information and knowledge continues to be so limited. Agricultural R&D organizations in developing countries must, therefore, join the search for ways to break down the isolation of rural communities. Specifically, we must identify practical approaches whereby rural people can build the knowledge they need to make their agricultural production more resilient and competitive, protect the health of fragile agroecosystems, and bring about technical and social innovation.

Modern information and communications technologies (ICTs), such as the Internet, could facilitate that task, but the new ICTs have not yet been made widely available or relevant to the poor in rural communities. Nonetheless, many developing countries have seen a proliferation of privately run Internet cafes in small towns, and some national governments and NGOs are extending Internet access to more remote rural areas through ambitious and socially progressive connectivity programs.

These developments offer CIAT and its partners an exciting opportunity to demonstrate convincingly how ICTs can be used to create stronger links between progressive, client-oriented agricultural research and local efforts to achieve sustainable rural livelihoods. In pursuit of that opportunity, CIAT established the Information and Communications for Rural Communities, or InforCom, Project in mid-2002.

In 2003 the project completed its first full year of operations. During the first few months of the year, we defined a five-part strategy for developing international public goods aimed at strengthening the capacity of rural communities and R&D organizations to obtain, generate, and share information, with the aid of ICTs. The strategy consists of the five central components listed below, which encompass a broad continuum of information and communications functions, from international and national organizations to rural communities:

From research results to development resources—e-learning programs and multimedia training tools

Better access to global information and knowledge—proven approaches and tools for finding and obtaining materials on the Web

Local use of ICTs for rural innovation—sound models for development of community telecenters to provide connectivity and build local capacity in ICT use

Local communications groups—community-based approaches for creating a local culture of information use

Local information systems—Approaches for stimulating the development of local content relevant to rural innovation

Building on previous experience in some of those areas, InforCom made significant progress during 2003, as described below, in advancing with all five components of its strategy.

From Research Results to Development Resources

Through agricultural research CIAT, other international centers, and many national institutes are amassing a wealth of information and knowledge about tropical crops and soils, integrated pest management (IPM), and related topics.

CIAT and others are also creating a wide array of participatory approaches that offer rural people a more prominent role in actions leading to sustainable livelihoods. These actions include crop diversification, agroenterprise development, local adaptive research, integrated pest and disease management, regeneration of degraded soils, and land-use planning at the community level. CIAT shares participatory approaches through training, printed materials, and Web publishing. But there is clearly a great need and much potential to do more. With a view to making these and other products of agricultural research more widely available and more relevant to development professionals in rural areas, CIAT has embarked on two new initiatives, one focused on e-learning and the other on multimedia training tools.

E-learning

Early in 2003, the project launched a new venture in distance education. For this purpose we chose a computer-mediated approach, or e-learning, because of its distinct advantages over other options. Unlike videoconferencing, for example, e-learning allows students to interact with tutors and other students over long periods (usually 3 months), in an asynchronous manner (i.e., at any time), and at any place where there is an Internet connection. E-learning thus lends itself more readily to life-long learning for busy professionals, who may lack the time or money to participate in courses involving specific time commitments and travel to remote locations.

Students are accompanied by experienced tutors, who facilitate the learning process. The experience is further enriched by discussions among students through a virtual campus, which is accessible to students, tutors, and experts invited to cover specific topics in the course. Students may access lessons and discussions in the virtual campus from Internet cafés, community telecenters, universities, or home computers, and they can download study materials and discussions.

To speed the incorporation of e-learning into CIAT's work, we chose REDCAPA as our partner. Headquartered in Brazil, this not-for-profit NGO has 8 years of experience in computer-mediated distance education. The head of CIAT's Information and Documentation Unit (IDU) and supervisor of library public services first established a representative working group of CIAT staff and then, with support from CIAT's Project Development Fund, organized a 10-day e-learning consultancy with REDCAPA's director. This included a 3-day workshop, which was attended by 40 CIAT staff. In addition, the consultant conducted interviews with 40 staff, which resulted in a list of 37 possible topics for e-learning courses. We also discussed funding opportunities and agreed to share experiences on how best to proceed jointly.

Based on the outcomes of this consultancy, the working group recommended that we concentrate on just a few courses initially, particularly on one—Ex-situ Conservation of Plant Genetic Resources and Management of Germplasm Banks—that had already been organized several times, in conventional fashion, by CIAT and IPRGI at CIAT headquarters. We decided to go about developing the course as a joint venture with Colombia's Universidad Nacional, IPGRI, and REDCAPA. Preparations for this course are well under way, and individuals from each institution are participating enthusiastically. Four other courses are in preparation.

Multimedia training tools

While continuing to produce printed materials, CIAT has also built the expertise required to develop multimedia products for distribution on CD-ROM. These products are designed to convey science-based knowledge and methods in forms that are practical, interactive, and instructive.

In 2003, InforCom completed its first multimedia training tool. Based on the experience of a recently completed 3-year project (InforCauca), the tool—called *Telecentros Comunitarios: Una Estrategia para Promover el Uso de las Nuevas Tecnologías de Información y Comunicación (TIC) para el Desarrollo Sostenible en Zonas Marginales*—offers recommendations and advice on telecenter development. It also provides details about the telecenters and organizations that InforCauca supported, with funding from the International Development Research Centre (IDRC) and Rockefeller Foundation. *Telecentros Comunitarios* presents this material in an engaging and interactive manner through a combination of brief, interestingly written Spanish-language texts, animation, photos, and other graphic elements.

The product was launched at Colombia's Second National Telecenter Workshop, which CIAT organized with two local partners and hosted at Center headquarters in early October 2003. *Telecentros Comunitarios* will be distributed to workshop participants, and it will be publicized in Colombia through Colnodo (an NGO partner that promotes the use of ICTs for development) and elsewhere in Latin America through the Fundación Chasquinet, which coordinates the regional telecenter network Somos@Telecentros. Local partners in Colombia plan to use the tool for promoting telecenter development through meetings with municipal government officials and NGOs.

The InforCom Project believes that multimedia products could usefully complement the training and learning processes through which CIAT works with partner organizations. As such they are potentially powerful tools for translating research results into resources for development. For that reason, having developed our first multimedia training product, we will now explore interest among other Center projects in applying this approach to a wide range of topics.

Better Access to Global Information and Knowledge

Over the last couple of years or so, the CIAT Web site has proved effective for broadening access to information about our research and its results and products. Statistics on use of the Web site during 2003 show a steady increase in the total number of visits to the site per month, which reached 133,000 in September, up from just over 80,000 in January. The total number of visits for the last year was about 1.3 million. For September we estimate that the number of different individuals accessing the site was roughly 72,000 from 166 countries. It is also worth noting that throughout the year the Agroenterprise Project site showed, by far, the largest number of files downloaded (e.g., informal documents, formal publications, and PowerPoint presentations); the figure for September was about 82,000.

Even so, filling Web sites with on-line scientific information does not by itself guarantee that users will be able to find the material they want and make good use of it. Key scientific information resources must be promoted among specific user groups and training provided in the use of these tools. Users also need to know about recently implemented copyright regulations for electronic

publishing, which differ by country and tend to be much more restrictive than those for printed materials.

To help meet those needs, InforCom offered a series of workshops in 2003, which contributed importantly to the capacity of close partners in Colombia and heightened their awareness of information resources available through CIAT. Three new initiatives were received with special enthusiasm: (1) a workshop for 15 professors at the Universidad Nacional-Palmira on access to electronic sources of scientific information relevant to their research and teaching responsibilities, (2) a similar event for 20 researchers from the Palmira facilities of CORPOICA, and (3) another for community telecenter operators, emphasizing information resources that are relevant to the needs of rural communities. In addition, interlibrary loans and other library services were formalized and streamlined for easier access in the future.

The project also supported initiatives involving the use of metadata, with multilingual keywords, to facilitate access to information across language barriers. For example, we took part in the CGIAR's InforFinder Project, which includes work on multilingual categorization schemes and key words.

In addition, we helped conceive and implement a project in collaboration with the UN Food and Agriculture Organization (FAO), the World Health Organization (WHO), Cornell University in the USA, and the Rockefeller Foundation, aimed at making scientific journals readily available to the world's poorest nations. In connection with this work, the World Bank's Agricultural and Rural Development commissioned CIAT to carry out a consultancy in Ethiopia, Kenya, and Uganda to assess the capability of libraries to access on-line scientific information resources. In the course of the consultancy, the head of the IDU gave a presentation on information access at a staff retreat of Uganda's National Agricultural Research Organisation (NARO) and in 10 other institutions that were visited.

Local Use of ICTs for Rural Innovation

As mentioned in the introduction to this report, Internet access is gradually spreading in developing countries, even in remote rural areas. As that happens the wealth of useful information being made more readily accessible to agricultural R&D institutions will also be available to growing numbers of rural communities.

Even so, increased public access to ICTs by no means guarantees that rural people will use them to obtain information relevant to sustainable livelihoods. For that to happen local organizations must make a deliberate effort to incorporate ICTs into pro-poor development initiatives.

Over the last several years, CIAT communications staff and local partners in Colombia's Cauca Department have been examining the potential of community telecenters as a means of fomenting local use of ICTs for rural development. In collaboration with the Corporación Universitaria Autónoma de Occidente (CUAO) in Cali, we have supported three telecenters, two rural and one urban, under the InforCauca Project.

A community telecenter is a public place where individuals and organizations can learn to use ICTs for development. It differs from the typical cybercafe in that telecenter operators provide users with personalized computer training as well as support in applying ICTs for specific purposes. To reinforce the

development orientation of the community telecenters, InforCauca has devised a general model for telecenters, in which they are hosted by local NGOs possessing a strong record of community service.

When the InforCom Project was created last year as part of CIAT's Rural Innovation Institute (RII), the telecenter work was incorporated into this new communications and information endeavor. As InforCauca came to an end (June 2003), we placed particular emphasis on evaluating the impact of the three telecenters supported by the project (with valuable assistance from CIAT economist Nancy Johnson) and on implementing a strategy to achieve telecenter sustainability.

Financial and social sustainability

The sustainability of InforCom's telecenter model depends on three key elements: (1) income for services, (2) support from host organizations, and (3) funds generated through the development of local projects involving ICT use.

Four months after the close of InforCauca and the end of donor support, all three telecenters are still operating and show reasonably good signs of achieving financial sustainability. Income for services, however, covers no more than about half the total costs of operating the telecenter (in some cases less). Interestingly, the host organizations have proved willing to pick up the rest of the costs. And some have been remarkably successful in obtaining funds for their own projects involving the telecenter operators and services.

Particularly noteworthy is the experience of a telecenter operated by the Corporación para el Desarrollo de Tunia (Corpotunia) in central Cauca. Early in the year Corpotunia received funding from the Spanish Fundación Desarrollo Sostenible (Fundeso) to coordinate Colombian participation in a project called Interculturanet. Its purpose is to promote cultural exchanges, via Internet, between school children in Spain and counterparts in Bolivia, Colombia, and Morocco, with a view to combating prejudice against migrant workers from those countries. Under this project Corpotunia organized the participation of children from 10 schools in Cauca and Valle Departments.

Corpotunia was able to undertake the project, because it had several years of experience in managing a community telecenter and could thus offer the necessary infrastructure, skills, and knowledge. Based on these same strengths, Corpotunia also obtained funds from the Instituto Colombiano para el Desarrollo de la Ciencia y la Tecnología (Colciencias) for a research project centering on the formation of *grupos gestores de comunicación*, or "communications groups," within local grassroots organizations. For more details about this project, which InforCom actively supports, see the discussion below under "Local Communications Groups."

The Asociación de Cabildos Indígenas del Norte del Cauca (ACIN), which operates a telecenter at Santander de Quilichao in northern Cauca, aspires to similar success. And for that reason it has developed a proposal for a communications project (not yet funded), under which it hopes to share its successful experience in the use of ICTs with other indigenous people's organizations in Valle and Chocó Departments. The project's title, Communication for Life, refers to ACIN's new conviction that communications in general and ICTs in particular are essential tools for defending the human rights of indigenous groups and for advancing other aspects of what they call their "life plans," including their work in agriculture and natural resource management.

One of ACIN's telecenter operators presented the project idea and shared the organization's experience with ICTs at the Workshop on Support Networks for Indigenous Peoples of the Americas. This event took place in the framework of the Second Annual National Forum on Connectivity for Canadians, held at Ottawa, Canada, in March.

It appears, then, that the financial sustainability of the telecenter depends only partly on its success as a microbusiness selling ICT services to the public. To a larger degree, it hinges on the host organization's conviction that community telecenters are a means of generating social benefits through specific ICT applications relevant to rural schools and other local organizations. Corpotunía and ACIN not only believe that is the case but have taken the further step of seeking funds for projects designed to generate such benefits.

Evaluation of institutional impacts

The results of InforCom's work on telecenter sustainability are closely related to some of the main conclusions of our impact evaluation. At the outset of the project, we expected impact to come chiefly from the decisions and actions of individual telecenter users. Contrary to our expectations, the most notable impacts can be seen within the organizations hosting the telecenters.

To examine those impacts systematically, CIAT's Impact Assessment Project carried out studies of two rural telecenters in Cauca, one hosted by ACIN and the other by Corpotunía. For this purpose Center economist Fabiola Amariles designed a survey of key individuals in those organizations, using a method developed by IDRC for assessing institutional changes attributable to particular projects or interventions. The method examines three aspects of an organization—motivation, capacity, and relationships with the external environment—with a view to determining how its performance may have improved in terms of effectiveness (or ability to achieve goals), efficiency (in the use of resources), and viability (or financial health).

The telecenter at ACIN

It is evident from study results that the telecenter has given rise to substantial changes in the life and work of this organization, which supports a dozen or so indigenous reserves in northern Cauca Department. The reserves are home to some 75,000 people, most of whom belong to the Paez ethnic group.



All of the ACIN staff interviewed had acquired new knowledge, improved the way they work, and linked their activities more closely than ever with those of outside agencies. Specifically, staff underscored the value of routine use of e-mail in ACIN to facilitate contacts and to develop externally funded projects, and they cited the usefulness of Web

searches for accessing information that was previously unavailable to them.

In examining the motivation of ACIN staff, the study found that the telecenter had better enabled them to fulfill the organization's goals, mainly in two ways.

First, the use of e-mail and the Web has enabled and motivated ACIN to compete more effectively for project funds. Staff are now more knowledgeable about opportunities and more efficient in handling project proposals. Increased awareness of the organization on the part of donors and collaborators has also helped: "We've made ourselves better known to the rest of the world," as one person put it; "we have greater credibility with other organizations," said another. Staff also note that ACIN's attractive organizational Web site has contributed importantly to those ends.

Second, learning about the strategies and experiences of other organizations, particularly those connected with indigenous movements in the Americas, has heightened ACIN's awareness of the overall significance of its work. This, in turn, has reinforced the commitment of individual staff to the organization's mission.

With regard to motivation, the study also looked for changes in decision making and organizational values. Although ACIN was a fairly democratic organization to begin with, the staff interviewed commented that decision making now rests on a broader base of information about a wide range of topics. Moreover, it appears that the telecenter has strengthened the role of women in the organization and in the indigenous communities generally. This is a result of the telecenter's active support for ACIN's Women's Program, particularly by obtaining and disseminating information about the use of gender analysis methods in projects. One result is that gender indicators have been incorporated into the land-use planning of indigenous reserves in five different municipalities.

These changes seem especially significant if one bears in mind that, from the outset of the InforCauca Project, some indigenous leaders have expressed concern that the adoption of new ICTs would do more harm than good. Their quite legitimate fears range from issues of personal safety and cultural pollution to questions of intellectual property and possibly negative implications for the Paez people's oral tradition of communication, which is a central element in their collective mode of decision making.

The debate about these issues continues in ACIN. And they are considered sufficiently important to have warranted, at the end of 2002, the creation of a Concejo de Comunicación, or Communications Council. This provides a formal framework for the telecenter as well as for several community radio programs and other communications activities. The Concejo also represents a partial answer to some indigenous leaders' reservations about ICTs. Appropriate, high-level leadership is one way of ensuring that these new technologies, in combination with "old" ICTs like radio, help rather than harm ACIN and the communities it supports.

Another way to ward off potential negative impacts is by building the organization's capacity to use ICTs appropriately. And in this regard the telecenter has contributed importantly to the personal and professional development of ACIN's staff. The changes began with telecenter operators like Wilma Almendra:

As a person I've benefited enormously. Before, I wasn't interested in the community. I hardly ever took part in meetings and assemblies, and when I did go, I usually fell asleep, because I didn't understand what people were talking about. Now, I not only attend assemblies, but I participate in them and tell others what I'm doing; and they show an interest in my work.

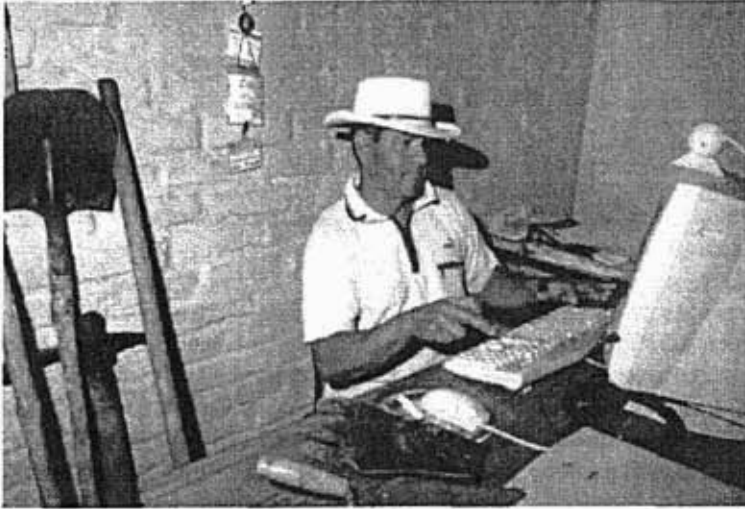
Other ACIN staff remark that new computer skills have improved their efficiency in the organization and in other activities, such as teaching. Some have also learned through the Web about opportunities for obtaining financial support to attend workshops and receive training.

One important manifestation of ACIN's improved communications capacity is the stronger integration that exists now between the organization's headquarters and some of the more remote indigenous reserves it supports. This has been achieved primarily by linking telecenter services with community radio programs. Under a system that ACIN staff call "chivanet," the telecenter operators copy documents, such as e-mails and files from Web sites, onto diskettes and deliver these to the driver of a rugged rural bus called a *chiva*, which travels daily to the remote reserves. The driver delivers the diskettes to the radio operators, who then convey messages and incorporate information from the Web into their radio programming.

According to the institutional impact study, ACIN has also benefited greatly from improved external communication. Staff note a marked increase in the organization's links with various types of organizations, especially donors, within Colombia and around the world. Each ACIN program—for health, education, natural resource management, and so forth—has widened its contacts with organizations that can provide specific information and other support.

ACIN received a dramatic lesson in the value of such contacts 2 years ago, when the intensification of fighting between guerillas and paramilitaries in northern Cauca resulted in gross human rights abuses against the Paez people. This included the assassination of indigenous leaders and massacres in remote Paez communities. The telecenter operators began sending digital images of missing persons to human rights organizations, in addition to using these to make printed notices for distribution by family members of the *desaparecidos*. With assistance from CIAT, ACIN also developed a media list and began sending communiques about the human rights abuses to the press and human rights organizations. Eventually, ACIN and other indigenous associations in the region organized a massive human rights march, in which 35,000 people participated. On this occasion the telecenter proved vital in handling logistics as well as communication with the media and other organizations.

In sum, the telecenter has served as a kind of communications unit for ACIN, and this helps explain why the latter is now willing, in effect, to subsidize telecenter operations. Arguably, the organization could have reaped the gains described above by adopting the use of ICTs in some other way, that is, without necessarily creating a telecenter. But, on the other hand, the strong training component of the community telecenter model and the continuous support offered by InforCauca proved decisive in successfully incorporating the use of ICTs into the organization. Moreover, having set up the telecenter, ACIN is now well positioned to extend the benefits it has reaped as an organization to the larger Paez community as well as to other indigenous people's associations.



*The telecenter at
Corpotunía*

Corpotunía is a not-for-profit NGO dedicated to promoting agricultural as well as social and cultural development in various municipalities of central Cauca through participatory approaches.

Unlike ACIN, Corpotunía had already begun using the Internet when the InforCauca

Project came along. Nonetheless, staff and management tended to view this largely as a secretarial function. Not until Corpotunía came to host the telecenter—after unsuccessful trials in a local technical school and the town cultural center—did it stimulate within the organization a learning process through which all staff acquired and began to apply ICT skills. Once it dawned on Corpotunía that hosting the telecenter placed it in the vanguard of local ICT promotion, then it made sense—even became urgent—for the organization's own staff to join the early adopters of this new technology.

The primary impact of this process within the organization has been to broaden considerably its field of action. What this means concretely is that the telecenter has given Corpotunía an entirely new focal point for project development—a task in which, as mentioned earlier, the organization has been remarkably successful. The new projects, in turn, have provided staff with exciting and innovative ways to work toward their development mission. As a result, they have come to see the telecenter as a source of broad social benefits—such as finding practical information for local flower producers, helping students with their homework, and reducing the cost of communication with friends and relatives working abroad.

Little wonder, then, that CORPOICA's manager, William Cifuentes, has become a strong proponent of ICT use in the region, "selling the idea to everybody," as he puts it. In doing so, though, he emphasizes the need for *acompañamiento*, or continuous support, in ICT application. Partly as a result of his efforts, another community telecenter has been set up in a neighboring municipality, and the Universidad del Cauca has become interested in supporting the telecenter movement at the departmental level.

In addition to motivating Corpotunía to widen its development vision, the telecenter has helped it build the necessary capacities for contributing to that vision. As at ACIN, this is particularly evident in the telecenter operator, Karla Bolaños, but other staff have acquired valuable skills as well. One commented, for example, that she used the Web to prepare for meetings and that this better enabled her to debate issues and participate in decision making. With regard to agriculture, technicians working for Corpotunía described how they were able to obtain technical information from the Web that proved useful in their extension activities with farmers. This is particularly important for the majority who are paraprofessional extensionists possessing only a high school education.

By adding an interesting new dimension to its work, Corpotunia has substantially improved its image or standing among other organizations. And it projects that image strongly through a well-designed Web site. Moreover, the manager of Corpotunia frequently shares his organization's experience with ICTs, for example, through the National Confederation of NGOs and board of directors of the Regional Center for Productivity. For those reasons and because of its success in ICT project development, Corpotunia is now viewed locally and in national organizations (including Colombia's Ministry of Communications) as a pioneer and leader in the use of ICTs for rural development in Cauca. As with other telecenter experiences, strong leadership (that is, the presence of a telecenter "champion") has proved to be a critical factor in this success.

The new telecenter mentioned above is supported by the Consorcio Interinstitucional para una Agricultura Sostenible en Laderas (CIPASLA) in Caldon, Cauca. Its director, Rodrigo Vivas, has also become a strong local champion for the use of new ICTs in rural development.

Telecenter impact in rural communities

In contrast with the experience of the staff of telecenter host organizations, use of the telecenter by members of the surrounding communities is still relatively limited. Numbers of users are still somewhat small in relation to the local population, and so is the range of economically significant ICT uses. This is evident from a series of evaluations carried out by CIAT economist Liliana Mosquera from 2001 to 2003.

In late 2001 she conducted user surveys in all three telecenters supported by InforCauca. About a year later, in late 2002 and early 2003, a baseline survey of rural households was carried out in communities around the telecenter operated by Corpotunia. Analysis of the user surveys was completed in 2002, and the baseline survey data were analyzed in mid-2003. At about the same time, follow-up focus group interviews were organized with users of all three telecenters to get a better sense of how the telecenters are affecting users' lives. Corpotunia and its rural beneficiaries are more typical of CIAT clients in general than is the case with the other two telecenters supported by InforCauca, so we focus mainly on this telecenter in reporting on impacts among ICT users in the community.

Results of a telecenter user survey

The main purpose of this study was to characterize telecenter uses and users. It looked at how people draw on both new ICTs as well as other communications media (including letters, telephone, radio, television, newspapers, and magazines) to meet their diverse needs. The idea was to determine how ICTs fit within a broader pattern of media use and to identify potential implications for telecenter impact.

One key point underscored by baseline study results was that telecenter users tended to be fairly young and well educated. At Tunia their average age was 30, and 95% had at least a secondary school education. Telecenter users were thus not representative of the general population but rather constituted a relatively elite group fitting the typical profile of "early technology adopters."

There were no differences between men and women in terms of the availability or quality of services, suggesting that the latter do not necessarily face major barriers in gaining access to ICTs. Nor did users face tradeoffs for

financial reasons in deciding whether to use one information source or another. In fact, they were spending more for information from conventional sources than on Internet use. So, among these early Internet adopters, cost is not a barrier to Internet access.

In analyzing uses of new ICTs and other media, the study grouped them into four categories: (1) family communication, (2) general information, (3) personal development, and (4) specialized information. With respect to Internet use, the patterns are quite clear. As indicated in the accompanying table, the great majority of telecenter visitors use the Internet for family communication and for obtaining information that is of general interest or relevant to personal development. They use other media for those purposes as well, so the Internet complements conventional information sources rather than substituting for them.

Uses of Internet in community telecenters, Colombia, 2001

- Family communication	20
- General information (news)	18
- Personal development (education, employment)	27
- Combinations of those three	24
- Specialized information (e.g., technologies)	2
- Specialized info. in combination with others	9

Significantly for CIAT and other R&D organizations, only about 11% of users sought specialized information related to decisions or activities of economic importance. But then, only 29% of telecenter users said they were obtaining such information from any formal source.

So what are the implications of these findings for community telecenter development? Obviously, if telecenters are to have an economic impact in people's lives, we need to know why so few telecenter users search for specialized information on the Internet or through other formal communications media. Is such information simply not available, or if it is, do users have little faith in its veracity? Are they getting this type of information mainly through family or personal communications in which they have more confidence? Clearly, important challenges are to boost the overall number of telecenter users and to expand the uses of Internet, which does, after all, offer the advantage of being a highly multipurpose resource.

Baseline survey of a telecenter's community

The main purposes of the baseline survey (of 445 households) carried out in late 2002 and early 2003 were to document the extent of telecenter awareness and use in the community, to identify any changes in the pool of telecenter users (in relation to results from the 2001 users survey), and particularly to compare users with nonusers. The survey also allowed us to examine broader information and communication patterns in the community.

Telecenter use at Tunia is still rather low, compared with use of other information sources. Only 25% of the town's population of just under 2,000 have visited the telecenter, even though just over half have heard about it. The figures are far lower for an agricultural community about 20 kilometers away, in which only 8% of the respondents had even heard of the telecenter at Tunia. Fortunately, though, CIPASLA has recently established a new telecenter in that community, which is clearly beyond the reach of the telecenter at Tunia.

Telecenter users are not as educated as the elite early adopters surveyed a year ago, suggesting that the user pool has broadened somewhat. Yet, telecenter users are still significantly better educated than nonusers, and they are also better off in terms of material well-being (i.e., access to electrical appliances, public services, and so forth). In addition, telecenter users are more likely to use, and spend significantly more money on, other communications media. Users and nonusers do not differ, however, with regard to gender or participation in community activities.

With respect to use of the Internet in seeking economically important information, little has changed since 2001. More than half of the farmers included in the survey, even the few who had used the telecenter, said they got such information from informal sources, chiefly other farmers, while 31% relied on formal sources, such as extension agents, agrochemical company representatives, and printed pamphlets.

The limited importance of the Internet as a source of specialized information could relate to availability and confidence, as suggested in the discussion above of telecenter user survey results. But the baseline community survey points to still another possible explanation. When asked what information might be useful to them in their work, farmers referred generally to technical assistance, training, and other topics, but only 21% were able to identify at least one concrete information need, as indicated in the accompanying table. In contrast, 34% of the students and all of the teachers were able to identify such needs.

*Percentage of respondents who identified
concrete information needs, Colombia, 2003*

	<i>Activity/occupation</i>
Agriculture	20
Business	25
Construction	33
Employees	46
Homemakers	6
Teachers	100
Students	34

These findings are consistent with the predominance of students and teachers among telecenter users. Teachers in particular are willing to pay for Internet use, because they evidently know exactly what information they need and can readily obtain it through the Internet. If community telecenters are to become equally effective as a source of information for farmers and other actors in rural development, then the needs of these people must be defined more concretely, and more must be done to identify or create reliable information sources that are genuinely useful to them.

Particular emphasis should be placed on using ICTs to develop projects aimed at improving public services or creating new employment opportunities. As mentioned above, Corpotunía has been quite successful in that regard. But according to the baseline survey, lessons from the organization's experience have not yet reached the community in general. Only one respondent in Tunia reported using the Internet for project development. The more common sources of information for this purpose are community meetings and leaders. Hopefully,

Corpotunia's work with communications groups in local grassroots organizations (described in detail below) will result in more frequent use of the Internet for project development.

The outcomes of the focus group discussions with telecenter users essentially reinforced patterns that are evident from the user and community surveys. Users tend to be younger and better educated than nonusers. And they frequent the telecenter mainly for computer training, to obtain general information (related to school assignments or availability of scholarships, for example), or to communicate with friends and relatives. Cases of individuals obtaining technical or economic information for use in development-related decisions are still scarce.

Even so, the few such cases that exist can be quite instructive. Members of a local association of flower producers, for example, have received training in basic computer software at the telecenter in Tunia. With a view to identifying the requirements for breaking into export markets, a Corpotunia agronomist helped them consult the Web sites of other associations. The group determined that, in order to export their flowers, they would need to improve their infrastructure, meet new demands in terms of product volume and quality, obtain credit, and so forth. Thus, access to information has enabled the group to clarify its vision for the future and to identify specific needs. But this information alone obviously will not enable the group to realize that vision. Other support services are required as well.

Some conclusions about telecenter impacts

Even though use of the telecenter at Corpotunia to obtain specialized information is still limited, this forward-looking organization and the surrounding community have made an important start.

A quarter of the town's population have become telecenter users just a few years since its establishment, and 18% have used Internet. They are proud to have the telecenter in Tunia and are pleased with what they have learned about ICTs. When asked about their own perceptions of the telecenter's impact, 83% of telecenter users (and 66% of nonusers) said it had generated benefits. The predominant telecenter uses—helping children do homework assignments and keeping in touch with friends and relatives—may seem superficial in terms of rural development. But they represent important gains for the townspeople, resulting in significant savings in time and money—a point stressed by many focus group participants.

Moreover, these telecenter uses are feeding the community's hope for a better future. The telecenter is fulfilling many people's desire to learn and to connect themselves with the wider world. The parents of young telecenter users express high expectations that, by learning to use ICTs, their children will gain new opportunities for education and advancement. With continuing support from Corpotunia, the experience of these early telecenter users should provide a solid foundation for further ICT applications that contribute more directly to the achievement of sustainable rural livelihoods.

Apart from this sense of optimism about the future, what specific lessons can we draw from our results on telecenter impacts in organizations and among users in rural communities? Or to pose the question in a different way, what can rural people reasonably expect from a community telecenter?

Clearly, in the early years of telecenter operations, its impacts in terms of sustainable development are most likely to be an indirect result of the improved efficiency and effectiveness that the host organizations gain through the use of ICTs. Presumably, such gains enhance these organizations' performance in helping rural communities develop new sources of income, improve their management of natural resources, and address other important challenges. It will take time and concerted effort, though, before significant development benefits arise from better decisions and actions taken by individual users of telecenter services.

Thus, we should view telecenters, in the first instance, as a strategy for strengthening local organizations and not just as a means of making useful information more readily available to rural communities. That being the case, the financial sustainability of the strategy can depend only in part on income from telecenter services to the public. The more decisive factor in the beginning is the conviction of local organizations that telecenters have a potentially large social value, of which the organizations themselves can be the immediate beneficiaries.

Once a telecenter is up and running, however, it is vital for host organizations to take further steps that enable other groups and individuals to realize the social benefits of ICT use. Only then will users become the mainstay of telecenter sustainability, reducing pressure on the host organization to subsidize telecenter operations.

Local Communications Groups

In search of means by which telecenter host organizations can enhance the direct development impact of ICTs among users in surrounding communities, the InforCom Project embarked in late 2002 and early 2003 on new endeavors that complement our support for the telecenters.

In search of information intermediaries

We believe that one of the keys to enhancing the telecenters' development impact lies in the formation of information or communications intermediaries in rural communities. Telecenters can clearly be an effective means of introducing connectivity and creating basic computer literacy in rural areas. But as our impact data show, many farmers will not have easy access to the telecenter, or will not feel inclined to visit it, or if they do visit, will not necessarily have a concrete idea of their information needs. Moreover, even if they do find information on the Internet that is relevant to their work, this may not generate the confidence needed to translate information into knowledge through experimentation, leading to effective action aimed at solving a specific problem or seizing a new opportunity.

Who, then, can help farmers perform those tasks, serving as a bridge between community telecenters and remote or reluctant users? Our experience with telecenters as well as other CIAT work point to various candidates.

Rural schools are an obvious one. At Tunía we did not find the local vocational school to be an effective host for the telecenter, mainly because school management was reluctant to assume the responsibility. Nonetheless, teachers and students are among the principal users of the telecenter hosted by Corpotunía, and in this they are strongly supported by parents. What role could schools play in making information more readily available to rural households?

Apart from aiding in school work, could this information help address concrete family needs and influence economically important decisions?

Another obvious candidate for the information intermediary role consists of extension officers like those working for Corpotunia. The use of ICTs has apparently better prepared these paraprofessionals to provide farmers with technical assistance. How much scope is there for extensionists to go beyond their conventional role in technology transfer to help identify information needs, use diverse communications media to link farmers with information sources, and foment a culture of knowledge discovery and sharing? And what kinds of training and institutional arrangements would be necessary to bring about such a shift?

Yet another possibility is to form communications groups within or in association with community-based organizations. Consisting of a half dozen to 10 people, these would include members of farm households with a particular interest in using modern ICTs, linked with conventional or traditional communications media, to overcome the isolation of remote rural communities. Gender and equity considerations would weigh heavily in the formation of these groups, so they could serve as a means of including women, indigenous people, rural youth, and other frequently neglected sectors of the population in the development of a local communications capacity.

CIAT experience has shown that farmer groups can learn to carry out valid research and develop successful agroenterprises, thus promoting an experimental and entrepreneurial culture in rural communities. Thus, it should also be possible for groups of farmer-communicators to learn to obtain and share useful information, thus fomenting a local culture of knowledge discovery. If successful, these groups could provide a useful support service to local research and agroenterprise development.

With a view to exploring this last possibility, InforCom has pursued two closely related lines of research over the last year or so.

Groups in grassroots organizations

Under a 1-year project developed by Corpotunia with funds from Colciencias, we are supporting efforts to develop *grupos gestores de comunicación* ("communications groups") within five community-based organizations operating in central Cauca. These are the following:

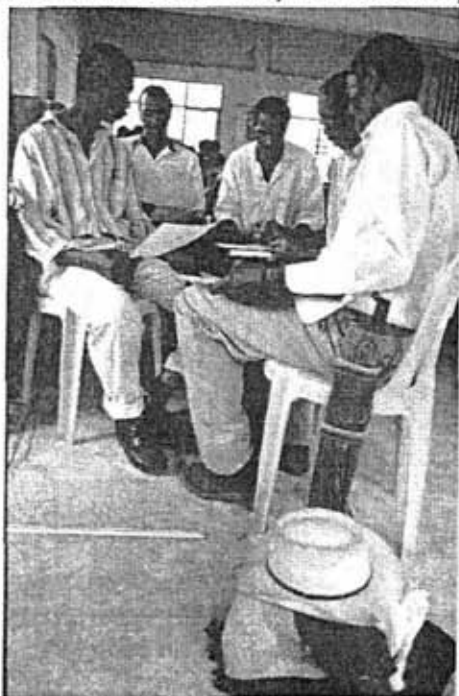
Asociación de Productores de Frutas y Hortalizas Orgánicas de Silvia, APRAOS (Silvia Association of Organic Fruit and Vegetable Producers)
Asociación de Beneficiarios de la Subcuenca del Río Cabuyal, ASOBESURCA (Cabuyal River Watershed Beneficiaries Association)
Asociación de Mujeres de Cajibío, ASOMUCA (Cajibío Women's Association)
Cabildo Indígena de Honduras (Honduras Indigenous People's Council)
Junta de Acción Comunal de Tunia (Tunia Community Action Board)

The central aim of the project is to determine whether and how the groups can be trained to build and share—through information acquisition and communication—the knowledge their organizations need to solve specific problems or seize particular opportunities. Toward this end a baseline survey of the five organizations was conducted in early 2003 to characterize them in terms of decision making, principal activities, institutional relationships, role of communications, and use of diverse media. Analysis of the results has not yet been completed.

The groups have received or are undergoing training on the following topics: introduction to communications, organizational strengthening, project planning and development, basic computer programs (covered in large part by Corpotunia's telecenter operator), and the use of diverse communications media. Each of the five groups has designed a project. The idea now is to see how they can use ICTs and other media (such as radio and video) to build the knowledge needed for implementing their projects and to share this knowledge with other members of the organizations.

Community-based groups

In related work, supported initially by IDRC and Rockefeller and currently with InforCom core funds, we have helped form three other groups of farmer-



communicators in three municipalities of northern Cauca. Group members are connected with various *panela* (brown sugar) producer associations scattered across the region. The aim is to establish whether and how these groups can acquire the capacity to provide an effective information support service or network for the *panela* industry (as a pilot case) and subsequently for small agroenterprises dealing with the region's other main value-added products.

For this purpose the groups received intensive training over the last year on a variety of topics. In addition, as with the *grupos gestores*, a baseline study was carried out. Unlike those groups, however, members of the three groups described here had not all previously worked together. So, their training initially focused on group organization and networking. The groups next received training in use of the Internet as well as other

media, such as radio. They also took part in workshops on graphic design, Web site development, and use of information resources available in the CIAT library. In addition to training, each group received *acompañamiento*, that is, weekly visits from InforCom staff, and occasionally met with the other groups to share experiences.

During recent months the groups have been developing communications work plans, according to which they will perform the following tasks:

- Characterize their main audiences in local communities.
- Publicize the local Information System for Rural Agroenterprise Development (SIDER, see the discussion below), which the groups are helping develop.
- Seek information from local sources as well as the Web that matches the needs of their main audiences.
- Determine current information flows in their communities and identify the main communications media and channels.
- Develop and implement communications strategies for sharing useful information in the SIDER with target audiences through appropriate communications media.

Define mechanisms for evaluating the impact of these communications strategies.

As the groups progress with their action plans, they are also establishing links with a wide range of local actors, including formal and informal educational institutions, government agencies, NGOs, and communications media. These links are essential for developing a territorial information system or network through which *panela* producers and other local entrepreneurs can construct the knowledge they need to create economically viable and environmentally sustainable agroenterprises.

As a result of our work with different types of groups under diverse circumstances and with different approaches, we expect to develop a generic method for communications group formation. We will then test the approach for its effectiveness in giving rise to "information intermediaries" or "knowledge brokers," who can link telecenter services with specific groups of agricultural information users.

Local Information Systems

Just as groups of farmer-researchers may work in a shared experimental plot, farmer-communicators can jointly build information products. These can provide a focal point for their learning process and eventually the basis for an information support service, which would be offered to the local community, eventually perhaps on a commercial basis.

A central assumption of our work with the communications groups in Cauca is that a locally developed Web-based information system can serve those purposes particularly well. Thus, in 2003 we worked closely with the three communications groups in northern Cauca to develop an on-line SIDER.

Rescuing local knowledge

Why a locally developed information system? Are not international and national organizations better placed and equipped to generate on-line content relevant to users of rural community telecenter? Certainly, these institutions do have an important role to play, and that is why translating research results into development resources (through e-learning and multimedia products) is the first output of the InforCom Project.

Nonetheless, much of what rural people want to know may already be available locally in the minds of innovative farmers or in the filing cabinets of nearby organizations. The development of a local information system is thus a necessary first step in organizing the rescue of that information, so that it can be accessed more easily in the surrounding communities. In addition to raising awareness of local knowledge, the system might serve to build a sense of pride in this and other local resources. Moreover, once local knowledge is on-line, the information can be shared with R&D organizations. They, in turn, can evaluate this information, add value to it based on other experiences, and give the added-value information back to rural communities through client-oriented electronic publishing.

But why an on-line local information system, given that few producers and processors have access to the Internet and are inclined or able to use it? One compelling reason is that an on-line system can easily be updated, as the communications groups glean new information from both local and distant

sources. Another is that, as we have seen in the development of CIAT's own Web site, a relatively complex Web-based system lends itself to decentralized development, so it is a good vehicle for involving group members directly in the process.

In fact, software is now available that makes it possible for individuals to publish information on a Web site without having direct access to the server or even to standard Web-publishing tools; all they need is a Web browser. CIAT's Information Systems Unit (ISU) has recently evaluated one such option—Action Applications, developed by APC. With support from the ISU, we will incorporate the use of ActionApps into the SIDER, which should be on-line by early next year.

To overcome the problem of limited Internet access, the communications groups are being trained, as described above, to analyze and use a wide range of other more conventional or traditional media, such as community radio, printed documents, community assemblies, and so forth. Through these media group members will be able to channel information available in the on-line system to a wide audience in their communities.

Building an agroenterprise information system

What kinds of information will aspiring entrepreneurs obtain through this process and how is that information being collected? The SIDER consists of five components: (1) a price information service, (2) general information resources on agroenterprise development, (3) detailed information about the region's main value-added products, (4) a section including other information about the region (prepared by the communications groups), and (5) an explanation of the SIDER process.

Farmers using the SIDER will find answers to questions such as "where can I sell my product" or "how much should I expect clients to pay?" Both farmers and organizations will find information that helps them improve agroenterprise management and enhance efficiency in adding value to specific tropical products.

The process of gathering all this information has proved to be slow but is now well advanced. Part of the difficulty has been the participatory character of the undertaking. Many of the actors (group members and local organizations) have had to learn new skills and acquire the habit of documentation. The overall procedure consists of the following steps:

- Define collectively the types of information to be included in the SIDER.
- Review the various types of agroenterprise systems developed elsewhere.
- Organize a workshop on Web site development.
- Form a team of persons who participate directly in site development.
- Design the structure or architecture of the site and obtain feedback from group members.
- Develop content and prepare a prototype site showing the structure, design, and system of site navigation.
- Evaluate and adjust the prototype.
- Build mechanisms and capacity for continuous local development of the site.

Development of the price information system is perhaps least advanced. But we have reviewed 26 Web sites of market information systems around the world and sought support from Corporación Colombia Internacional (CCI). As for the general agroenterprise information, we have compiled, in collaboration with local partners, information on sources of financing, agroenterprise organization,

support services, and relevant legislation. Working closely with Corpotunía, we are also well along in developing content on specific value-added products, particularly *panela*. The topics covered by this component of the system are as follows:

Production technology: Sustainable crop management, integrated pest management, reducing harvest losses, production of improved planting material, calculating production costs, use of inputs, and so forth

Processing technology: Storage procedures, processing practices and their costs, quality control, and so forth

Market information and contacts:

Fresh products

Processed products (volume, packaging, seasonality, etc.)

Instructive experiences in commercialization

Alternative markets (e.g., for organic products)

In the future such information will be available for at least six products that have been prioritized by an agroenterprise stakeholder group (of which Corpotunia and CIPASLA are members) in northern and central Cauca. They are dairy products, blackberry, plantains, anthuriums (a tropical flower), cassava, and *panela* (brown sugar).

The work of the groups on more general information about their communities has proved essential for getting them directly involved in site development and for building their sense of ownership of the SIDER. The groups are focusing on topics such as community history and tourist attractions, information that should better enable the SIDER to stimulate a sense of pride in local culture and resources.

As in our work with the various communications groups, we plan to develop a generic procedure for participatory development of local agroenterprise information systems. We will then evaluate the effectiveness and viability of this approach for making relevant content available (through ICTs and other media), both to local entrepreneurs and R&D organizations.

Plans for 2004

Based on the project activities and outcomes presented in this report as well as on new opportunities that have arisen recently, we have tentatively defined the following activities for next year.

Four e-learning courses will be carried out, covering the following topics: ex-situ conservation of plant genetic resources and gene bank management, three-dimensional participatory mapping, production chains as tools for linking smallholders to markets, and entrepreneurial orientation and market fundamentals.

Having developed its first multimedia training tool in 2003, InforCom will promote the use of this tool in Latin America, identify suitable topics for further products of this type, and proceed with the development of one or more promising candidates in 2004.

The project will establish new collaborative arrangements with Colombia's Universidad Nacional, CORPOICA, and other organizations aimed at strengthening the national agricultural information network. A project

proposal for this purpose will be developed for consideration by a new World Bank-funded project on rural diversification.

InforCom will work with other CIAT staff to develop an ICT/knowledge management project for the CGIAR.

Based on the outcomes of the InforCauca Project, InforCom will consolidate and extend its work with community telecenters and related initiatives in Colombia by expanding its alliance with local partners. Negotiations are already under way, for example, with the Universidad del Cauca.

As described below under "Resource Mobilization," InforCom will seek to establish "learning alliances" with organizations in selected countries of Central America, the Andean Zone, and East Africa that are exploring the use of ICTs in support of agroenterprise development and related aspects of rural innovation. Efforts in 2004 will follow up on contacts and consultations made this year with CIAT staff and potential partners in those regions. The main purpose of our learning alliances will be to combine CIAT's experience and results with those of partner organizations, with a view to identifying good practices that can be adapted to diverse circumstances. For this purpose collaborative software, called Expertise and developed by CIAT's Information Systems Unit, should prove highly useful.

Annex: InforCom Staff, Partners, and Support Activities

Project Staff

Nathan Russell (50%), Project Manager and Head, Communications Unit (CU)
Edith Hesse (30%), Head, Information and Documentation Unit (IDU)
Dora Patricia Arévalo, Research Assistant
Rebeca Bolaños (30%), Secretary
David Brand, Economist
Eduardo Figueroa (50%), Training Specialist
Jorge Gallego (25%), Systems Engineer

Luz Marina Gómez, Research Assistant
Odilia Mayorga, Research Assistant
Mariano Mejía (30%), Library Public Service Coordinator
Erika Mosquera, Communications Student
Liliana Mosquera, Economist
Olga Patricia Paz, Research Assistant (left during the year)
Silvia Andrea Pérez, Communications Assistant
Martha Cecilia Sarria, Community Facilitator
Simone Staiger (25%), Web Publishing Coordinator
Diana Paola Valero (25%), Graphic Designer

Note: Staff for whom no percentage is indicated worked full-time for InforCom.

Project Partners

Asociación de Cabildos Indígenas del Norte del Cauca (ACIN), Santander de Quilichao, Cauca, Colombia
Association for Progressive Communication (APC), through Colnodo (NGO), Bogotá, Colombia
Consorcio Interinstitucional para una Agricultura Sostenible en Laderas (CIPASLA), Caldon, Cauca, Colombia
Corporación Colombiana de Investigación Agropecuaria (CORPOICA)
Corporación para el Desarrollo de Tunía (Corpotunía), Piendamó, Cauca, Colombia
Corporación Universitaria Autónoma de Occidente (CUAO), Cali, Colombia
Fundación Chasquinet, Quito, Ecuador
International Plant Genetic Resources Institute (IPGRI), Office for the Americas, Colombia
Red de Instituciones Vinculadas a la Capacitación en Economía y Políticas Agrícolas en América Latina y el Caribe (REDCAPA), Brazil
Universidad Nacional, Colombia

Note: Within CIAT, InforCom collaborated actively with the Rural Agroenterprise Development and Impact Assessment Projects in research on telecenters, communications groups, and local information systems. Work on e-learning was done in collaboration with the Genetic Resources, Rural Agroenterprise, and Land Use Projects.

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In addition, InforCom staff supported the development by a local partner (CUAO) of an approximately 20-minute documentary video dealing with the educational potential of community telecenters. The video will be presented in November at the Segundo Festival Educativo y Cultural in Madrid, Spain.

Project staff also made three formal presentations of InforCom at various symposia in Colombia and four informal presentations to potential local partners or supporters in Colombia, including the country's first lady, Doña Lina de Uribe.

Training Courses

Three workshops on accessing electronic sources of agricultural information at Colombia's Universidad Nacional-Palmira, CUAO, and CORPOICA.

Two training workshops for telecenter operators and other staff of local partner organizations in Colombia, one on basic graphic design and another on agricultural information resources relevant to rural communities.

A workshop on how to use controlled vocabulary for better access to Web-based resources for information managers in CIAT projects.

Several training workshops for members of community-based communications groups on the following topics: introduction to communications, group organization, organizational communications, formation of social networks, project planning and design, basic computer programs, use of various communications media (e.g., radio, video, and printed products), Web site development, and design and implementation of communications strategies.

Workshops

Organized and hosted Colombia's Second National Community Telecenters Workshop at CIAT headquarters (80 participants).

Participated in the Second Regional Telecenter Workshop, organized by the Fundación Chasquinet at Quito, Ecuador.

With REDCAPA organized a workshop on computer-mediated distance learning for CIAT staff and selected partners.

Organized the participation of Colombian telecenter operators in these events:

- Workshop on Support Networks for Indigenous Peoples of the Americas in the framework of the II Annual National Forum on Connectivity for Canadians at Ottawa, Canada.
- VI Taller de Redes Internet para América Latina y el Caribe in Mérida, Venezuela.
- Conéctate, Primer Encuentro de Informática de los Niños y Niñas de Colombia, in Bogotá, Colombia.

Students

A communications student at the CUAO is carrying out a practicum, in which she provides communications support the above-mentioned SIDER.

Assistance

InforCom staff provided weekly assistance to three community telecenters, based on telecenter work plans, as well as on-site training in Web site development. They also made nearly weekly visits in support of a total of eight community-based communications groups in northern and central Cauca, with a combined membership of more than 80 people.

Planning for Rural Development

CIAT's work on planning for rural development was provisionally attached to the InforCom Project in 2003, pending a final decision about how exactly the former will be integrated into the Rural Innovation Institute. For that reason the following annual report on planning is presented here with the report on InforCom.

Abstract

This section addresses how territorial entities and community-based organizations can use planning as a mechanism for rural development, and how scientists and information providers can use planning as an entry point into development. This work

began in 1999 as the "Land Use" component of the agreement between CIAT and the Ministry of Agriculture and Rural Development (MADR, the Spanish acronym), and this year has seen the addition of case studies in Bolivia, Peru, and Senegal. We aim at facilitating the use of information by local stakeholders for the management of their natural resources by providing methods and tools, documented examples of planning, and principles (or insight) that can help successful planning and the efficient use of information. These are developed through case studies in specific locations, and are then diffused through training events, seminars, reports, and publications, as well as through the CIAT Web page. This year in Colombia, the prototypes of a series of decision support tools were "launched" and made available through the CIAT Web page. They will continue to be co-developed with users in Colombia. Following CIAT's restructuring, this group was placed in the new project "Information for Rural Communities (InforCom)", under the Rural Innovation Institute.

Introduction

We are aiming at validating a series of hypotheses on why certain approaches work better than others, why planning simply does not work in certain circumstances, and why information is seldom used for decision making. This research component, which we had previously approached by trial and error through development applications, is just beginning to emerge more formally.

Scientists and information providers can use planning as an "entry point" to rural development

Planning is part of the coordination and management process of any individual, group, or organization. In some cases, the law requires official planning mechanisms, which makes them less appealing, but turns them into a predictable process to which scientists and information providers can link. Decentralized countries are divided into a hierarchic arrangement of "territorial entities" that are responsible for coordinating development activities and resources over their entire territory, both urban and rural. These entities are obliged to conduct regular planning exercises, supported with monitoring and evaluation. Although these exercises are often perceived as bureaucratic requirements, and are not sufficiently taken advantage of, they are extremely valuable mechanisms to coordinate the various players of rural development. Local groups and administrations can make good use of planning if they are proactive, and approach the exercises with a learning attitude, where local actors consider the different actions they (and others) have to conduct to reach a desired future.

During planning, monitoring, and evaluation, participants have to determine their desired situation, and periodically evaluate and compare it with their present one. They then have to consider different possible actions that they can put forward to get closer to the desired conditions, and determine what contributions are needed from outside. When they make decisions, they are actually making hypotheses about what should work best, and they can validate these through monitoring and evaluation. Indeed, as they go along, they observe the consequences of their decisions and actions, and eventually adjust their plans, learning in the process. Planning groups can benefit from the input of scientists, experts, and information to better evaluate their situation and their context, to broaden their range of possible options, to explore their long-term implications, and eventually to choose between them. Scientists and information providers can benefit from these exercises to put their knowledge to work, and to better focus their research and data collection regarding the needs of rural development processes. They can even work on testing local hypotheses with local groups. To participate in local development, they need not necessarily

participate actively in the meetings of local groups, but can be linked to them through information communication technologies (ICTs).

Planning as a research theme in itself

The systems approach to planning that we are promoting is not something fundamentally new, as many aspects of rural development have been approached systematically for decades. However, we have some research hypotheses that we want to verify through our case studies:

Planning, where groups engage in a continuous process of diagnosis, action planning, and monitoring and evaluation, can greatly improve local learning, rural innovation, and the capacity of rural populations to adapt to adverse or changing conditions (this can seem obvious, but considering how few consistent processes of planning are being implemented, we think this hypothesis is worth demonstrating).

Many of the obstacles related to planning and politics result from an inadequate sense of responsibility on the part of leaders and citizens, or are related to counterproductive logic, such as looking at issues with a “winners and losers” perspective, being obsessed with growth (either economical, social, or emotional) at the detriment of the group’s well-being, the quest for quick and easy gain, a dependence on assistance, or a focus that is too short term or too restricted to certain economic sectors. These can be strongly moderated by adopting a logic of progression towards long-term and collective goals. This logic can be developed in planning workshops where participants discuss their desired future conditions, their possible contributions, and the contribution they need from other players (or requests).

During diagnosis, monitoring, and evaluation, information is not used optimally if participants and planners do not have a clear idea of their desired future conditions. Clearly stating these allows indicators to be defined, and allows a reference with which to compare observed conditions. In their absence, diagnosis and monitoring remain purely descriptive, not allowing judgment, and thus reducing the possibilities of learning in the process, and data can be accumulated without ever being used for decision making.

Different hierarchic levels of territorial administration can improve the coordination of their development efforts by articulating various “contributions” and “requests” of the players from one level to the next, from the bottom up. This approach can be used in the articulation of municipal plans at departmental level, and of departmental plans at national level.

Context of the development of research activities on planning in CIAT

This work began in 1999 with the contribution of the Land Use project to the agreement between CIAT and MADR. We wanted to put geographical information and decision support tools (DSTs) at the service of decision makers so they could improve the rationality of land use. Planning mechanisms, required from all administrative levels, and that can also be implemented at the village level, appeared as our best entry point, for the reasons mentioned above. Through our case studies in Colombia, described in more detail later, we observed that the potential of planning is often not well taken advantage of, neither as a learning and development tool, nor as an entry point by

scientists and information providers. We realized that planning processes could be improved greatly, not so much by the use of specific methods, but by a change in the approach and logics behind the activity. In addition to continuing to work on how geographical information could be used in planning, and how scientific results could be made into DSTs and also used in planning, we started looking at ways to improve the planning processes themselves. Our Colombian case study spurred interest, and we received much demand for training on territorial planning, in which we needed to give recommendations to participants. This encouraged us to reflect on ways to improve planning, and we are presently promoting a systems approach to planning, based on the consideration of society as a system, interrelated with biophysical systems, organized hierarchically. We have developed a very simple participatory planning approach that allows municipalities to quickly articulate visions, proposed actions, and requests of different stakeholder groups (Beaulieu et al., 2000; 2002), and that departments could use to articulate municipal plans. We have also become interested on how planning processes can catalyze and facilitate learning and rural innovation. This team therefore joined the InforCom project in 2003, while continuing to contribute to some outputs of the Land Use project.

In 2003, we began case studies in other countries—Bolivia, Peru, and Senegal. Our partners in these countries have a strong interest in revising existing planning guidelines to improve planning processes. We are therefore continuing our reflections on these methodological issues with a much larger range of partners and cultural contexts. The work in Peru was initiated through an alliance with the German Agency for Technical Cooperation (GTZ) and CONDESAN, who were interested in applying some of our methods, jointly with theirs, in some of the pilot watersheds of the CONDESAN consortium. The work in Bolivia has resulted from the hosting of Hubert Mazurek, a scientist from IRD, in the InforCom project. The work in Senegal is conducted in relation with the Desert Margins Program (DMP), and involved the posting of Nathalie Beaulieu in Dakar. These case studies will be described in more detail below, but it is important to mention that, through them, we have agreed to follow a coherent research agenda, where the studies in different countries will contribute to our understanding of how rural development can be improved, and help us demonstrate some basic hypotheses.

Our work in Colombia will continue through a new agreement with MADR, and will be oriented more specifically towards improving the efficiency of rural technical assistance through municipal planning in the entire country, and through follow-up in coordination at the department level. As the 1999-2003 agreement is presently finishing, this year involved concluding and launching the various DSTs prepared for the Colombian llanos.

Through case studies in Colombia, Bolivia, Peru, and Senegal, we will test the research hypotheses mentioned above, develop documented examples that can be helpful in other sites, and develop methods and tools for rural planning. The experience acquired in these case studies is then communicated to others during training, and in reports and publications. Note that we are not studying planning as an end in itself, but as a mechanism allowing collective learning and organization for rural development.

Colombia

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Unidad Municipal de Asistencia Técnica Agropecuaria [UMATA]]; Wilson Gaitán (SN-1); Fernando Calle (Consortio Latinoamericano y del Caribe para la Investigación y el Desarrollo de la Yuca [CLAYUCA]); Clément Geney (Université Montpellier II)

Materials and methods

The Colombian MADR funds work in Colombia. The area chosen by the MADR for its 1999-2003 agreement with CIAT was the Colombian llanos, or eastern plains, with a particular interest in the area between the cities of Puerto López and Puerto Gaitán, previously dominated by livestock, but with potential for new crop varieties that are tolerant to acid soils. Municipal planning appeared the best mechanism to make use of the geographic information that had already been digitized by the Land Use project, and to have a concrete influence on land use decisions. Incidentally, all municipalities in Colombia were under the pressure of producing their *Plan de Ordenamiento Territorial* (POT), a new, long-term, spatialized planning exercise that they had never experienced before. We supported the administration of the municipality of Puerto López, which almost reaches the city of Puerto Gaitán, in the elaboration of their *Plan Básico de Ordenamiento Territorial* (PBOT; Alcaldía de Puerto López-CIAT, 2000). This experience triggered an important demand for training in planning methodology and GIS tools, to which we responded with a number of courses given from 2000 to 2002. We then supported the municipality in the elaboration of its *Plan de Desarrollo Municipal* (PMD) in 2002 (Alcaldía de Puerto López-CIAT, 2002).

Understanding the importance of the contributions of all administrative levels, we have designed our activities to support decisions at the national, regional, departmental, municipal, and village levels, although until now we have worked mostly at the municipal and village level. Through the logistic support of local projects related to cassava, we realized that planning workshops and follow-up at the village level, which were conducted for municipal planning, helped develop new partnerships between local groups, the municipality, the municipal unit of agricultural technical assistance, researchers, and private industry. In Colombia, municipalities are responsible for providing free technical assistance to small-scale farmers, and thus of planning this assistance with the beneficiaries, through a municipal committee of rural development. In Puerto López, the various committees formed to follow up on specific aspects of the municipal plans (local emergencies, territorial planning, sports, rural development, etc.) were combined into one committee that holds more frequent meetings for the follow-up of activities, and has the possibility of articulating activities that affect various sectors.

Results

The highlights of the Puerto López case study for this year are:

- A multi-sectoral committee of the civil society, with our support, is conducting follow-up of the municipal PBOT and PMD, using the SEGUIMIENTO tool, presented later. With the UMATA of Puerto López, we are continuously following up planning meetings in communities, and have supported various initiatives.
- A cassava drying trial, conducted in 2002, led to the adoption of this practice in the village of El Turpial, the commercialization of dry cassava with animal feed factories, and the funding of a drying facility by the municipal administration.
- Cassava variety trials were conducted in five of the rural communities, jointly between farmers and CIAT's cassava project.

The indigenous communities of Humapo and La Victoria constructed a tree reproduction greenhouse, and have begun producing small trees for the reforestation of their reserve and for commercialization.

A poster was presented at the Global Forum on Agricultural Research (GFAR) meeting in Dakar, May 2003, explaining how municipal planning catalyzed local innovation and partnerships related to the cassava crop (CIAT, 2003).

With MADR, we have identified specific contributions of rural planning for the next phase of the agreement with CIAT, oriented towards improving the efficiency and relevance of rural technical assistance, through municipal planning and monitoring, as well as monitoring at the department level.

Bolivia

Contributors: Hubert Mazurek (IRD, UMR-151, hosted in CIAT); Louis Arréghini (IRD); Ismael Gonzáles (Dirección General de Ordenamiento Territorial, Vice Ministerio de Planificación y Desarrollo Sostenible [VMPDS]); René Pereira, Jaime Montano, Hugo Torrez (Consejo de Población [CODEPO], VMPDS); Andrés Uzeda (Universidad Mayor de San Simón-Instituto de Estudios Socio Económicos [IESE]); Fernando Antezana (Universidad Mayor de San Simón-Centro de Planificación y Gestión [CEPLAG]); Marcel Galindo, Miguel Peñaranda (Instituto Nacional de Estadística [INE])

Materials and methods

Our work in Bolivia is funded by IRD UMR-151, CIAT, and the Bolivian Vice Ministerio de Planificación. Since 1994, the Bolivian laws of popular participation and decentralization have provided municipalities with responsibilities and financial resources to administer their territory. Territorial planning as such is the object of a normative and methodological framework defined by the *Dirección general del Ordenamiento Territorial* (OT). Since 1996, departmental administrations have elaborated land use plans (*Planes de Uso del Suelo* [PLUS]), which represent an agro-ecological zoning, but lack relevance for the planning and elaboration of development policy. Very recently, a few municipalities have started the same process. However, most of these plans are elaborated by external organizations or consultants, and are not effectively used, on the one hand because they do not correspond to the needs of populations, and on the other hand because municipal technicians find them difficult to understand. In addition to this, the methodology used for the OT plans is based almost exclusively on biophysical parameters used to establish a balance of the use of the land's potential. Our work in Bolivia therefore aims at engaging a learning process, within the institutions in charge of planning, about participatory planning. In addition to this, we aim to develop, jointly with these institutions, a set of regionally adaptable guidelines for participatory territorial planning that can be used for municipalities, groups of municipalities (*mancomunidades*), or departments to articulate their activities in the various economical sectors, as well as to integrate local and regional development projects.

Methodological collaborations have been initiated with the *Dirección del OT* (much oriented towards biophysical considerations), and CODEPO (which establishes demographic policies), INE, the Ministry of Agriculture, and institutions of the Sistema Boliviano de Transferencia Agropecuaria (SIBTA). As explained in the introduction, the case studies are conducted to ensure that the proposed guidelines are adapted to the Bolivian context, and contrasted sites were chosen to allow Bolivian diversity to be taken into account. Like in the other countries, these case studies will also yield examples that will be communicated throughout Bolivia, and are providing opportunities to test our research hypotheses.

Results

In Bolivia, the highlights of our activities for this year are:

Three groups of municipalities (four in the *Altiplano* south of La Paz, four in the department of Pando, and one in the department of Cochabamba) were chosen for pilot study sites. Initiation workshops were conducted in two municipalities, which signed an agreement of engagement (with the *Dirección del OT*) to conduct participatory planning. Meetings with mayors of the other municipalities were

conducted, in September 2003, in which we jointly agreed to start the planning processes in March 2004. General Agreements between the *Dirección del OT*, CIAT, and municipalities should be signed before the end of 2003.

A collaborative agreement was drafted between CIAT / IRD, the *Dirección del OT*, CODEPO, and INE to define respective roles in the collaborations under way.

We are currently reviewing the methodology used by the Bolivian government for territorial planning to include many more socioeconomic aspects and participatory practices.

We participated in the teaching of courses of the Masters degree in Rural Development of the Universidad San Simón de Cochabamba, and in the directorship of three Masters theses on rural innovation.

On the 29th and 30th of September 2003, we organized a seminar on stakeholders, territory and local development, where we analyzed the progress of local development planning in different regions of Bolivia, in the context of the 50th anniversary of the agrarian reform.

We organized a statistical cartography course at the end of October 2003, for technical staff working in the organizations with a role in public planning.

Peru

Contributors: Marcela Quintero; Wilson Otero (GTZ-Colombia); Rubén Darío Estrada (Centro Internacional de la Papa [CIP]-CONDESAN); Alonso Moreno (GTZ-Proyecto Cuencas Andinas); Josef Haider (GTZ-Corporación Para la Seguridad Alimentaria [COPASA] Arequipa)

Materials and methods

Work in Peru is funded by GTZ-Peru. In May 2003, The Peruvian Congress approved the new municipalities law, the *Ley Orgánica de Municipalidades*, defining the responsibilities of municipalities, which can either be provinces or districts. One responsibility is to promote the integral, sustainable, and harmonious development of the municipality's circumscription, with the help of a local planning process that must be integral, permanent, and participatory, and coordinated with the regional and national levels of government. A variety of sectoral and multi-sectoral plans are required regularly from municipalities. Multi-sectoral plans include the *Plan de Desarrollo* as well as the *Plan Urbano Rural* (for districts), and the *Plan de Acondicionamiento Territorial* (for provinces). Each year, municipalities have to plan their budget through a participatory process, resulting in the *presupuesto participativo*.

Through an alliance with CONDESAN and GTZ, we agreed to give support to GTZ in Peru for the implementation of territorial plans, and at the same time participate in these experiences as case studies. We jointly decided to begin this collaborative work in the region of Arequipa to benefit from links with projects such as the *Gestión de Riesgo de Desastres Naturales con Enfoque de Seguridad Alimentaria en el Departamento de Arequipa* (executed by COPASA-GTZ), *Cuencas Andinas*, and CONDESAN, which is active in the region. The district of Pampacolca was chosen as a pilot site for the elaboration of the *Plan Urbano Rural*. Before starting actual work in the pilot site, we agreed to jointly organize a course on territorial planning directed to some of the institutions of the regional government of Arequipa and of the district of Pampacolca, to members of universities and NGOs of the region, and to GTZ staff in Peru. We agreed also to organize a workshop on the importance of territorial planning, involving decision makers of the districts, provinces, and regional government of Arequipa. These workshops were conducted in September this year.

Results

The highlights of our work in Peru for this year are:

We conducted field visits in the districts where GTZ-COPASA intervene, to become acquainted with their development plans, and the problems they have experienced.

We conducted the workshop/seminar entitled “Bases para la Formulación de Planes de Ordenamiento Territorial”, in Arequipa, from 8 to 14 September 2003, including a practical component in the district of Pampacocla.

We conducted the workshop/seminar entitled “Planes de Ordenamiento Territorial como herramienta de gestión del espacio en Arequipa” on September 16th in Arequipa.

CIAT and GTZ-Colombia are assisting GTZ-Peru in the writing of terms of reference for the elaboration of a pilot territorial plan in the district of Pampacocla.

Senegal

Contributors: Nathalie Beaulieu; Abdourahmane Tamba (Institut Sénégalais de recherches agricoles [ISRA], DMP National Coordinator for Senegal); Ibrahima Diaïté (ISRA, Bambey); Samba Ndiaye (ISRA-Consejo Nacional de Recursos Hídricos [CNRH]); Jean Charles Faye (Agence nationale de conseil agricole et rurale [ANCAR], Thies); Oumar Daff, (Direction des eaux et forêts); Aline Ndiaye, Khady Sow (ANCAR); André Bationo (TSBF); Ramadjita Tabo (DMP Regional Coordinator, ICRISAT), Saidou Koala (overall DMP Coordinator, International Crops Research Institute for the Semi-Arid Tropics [ICRISAT])

Rationale

Work in Senegal is funded by GEF. As previously mentioned, our work in Senegal is made possible by the hosting of Nathalie Beaulieu at ISRA, and her inclusion in the DMP team. The DMP is not a project on territorial planning, but is a project that aims at improving rural livelihoods through the improvement of biodiversity and soil fertility. One of its objectives is to improve knowledge on the existence and management of this biodiversity and soil fertility. It started in 2003 and works in nine sub-Saharan countries—Senegal, Niger, Mali, Burkina Faso, Namibia, Kenya, South Africa, Zimbabwe, and Botswana. Two of its outputs are entitled “stakeholder participation” and “capacity building”. In Senegal, planning (including monitoring and evaluation) is the mechanism that has been chosen for their implementation. All of the activities of the DMP in Senegal will be conducted at the level of the rural community, but with strong linkages with the higher administrative levels, which are municipalities (either *arrondissements* or *communes*), departments, and regions, as well as with a network of resource persons (rural extension agents and scientists). A rural community can include various villages. As prescribed by the Law on Decentralization, rural communities must conduct and follow up local development plans.

Materials and methods

The Senegalese component of the DMP is focused, for the first 2-year phase, in four regions of the country—Kaolack, Diourbel, Fatik, and Thiès. In each region, it will work in about four rural communities, which are therefore the pilot communities for the case studies on planning as a rural development tool. At present, because the program has only recently begun in Senegal, we have only established links with the rural communities and other partners, through visits and workshops in the regional capitals and rural communities.

Results

The highlights of our activities in Senegal for this year are:

An agreement was made with ISRA for CIAT to contribute to the Senegalese component of the DMP through the out-posting of Nathalie Beaulieu at ISRA in Dakar, starting September 2003.

Several meetings were conducted with regional and local partners to discuss study sites and methodologies used for common outputs on local stakeholder participation, capacity building, and monitoring of land degradation. Study sites were visited.

Four Regional Development Council (CRD, the French acronym) meetings were held in the "*gouvernance*" (regional parliament) of the studied regions, with the participation of regional, departmental, and local authorities.

Methods and Information Tools Developed for Rural Planning

A series of tools and methods were "launched" this year as a result of the 1999-2003 Agreement with the Colombian Ministry of Agriculture and Rural Development. The preliminary development of most of these tools was reported in previous annual reports of CIAT's Land Use project. We expect to continue adapting and co-developing them with partners through extensive training and follow-up in Colombia, and through our work in the various case studies mentioned above. We detail below the function of each tool, and explain what has been achieved this year.

Participatory systems approach to planning an *Herramienta de Planificación Participativa* (HePP)

Contributors: Nathalie Beaulieu, Jaime Jaramillo, Genner Narváez, Juan Lucas Restrepo, Jorge Mario Díaz; Grégoire Leclerc (CIRAD-Département territoires, environnement et acteurs [TERA])

In 2000, we presented a participatory planning method that could be used for municipal planning, and to articulate municipal plans into departmental ones (Beaulieu et al., 2000). In 2001, we elaborated a computerized tool that allowed users to store their results in a database, and use them as a "draft" for discussion with the Intelligent Team Decision Assistant (ITDEA) discussion support tool (Leclerc and Narváez, 2001). This tool was "launched" as a prototype this year, along with the other, hoping to further improve it with partners. We realized that this method, although complete in its consideration of the steps of the planning process, was too long and complicated to use for many municipalities. In 2001, we tried to derive its essence, and came out with a simplified version, entitled "Visions, actions and requests across administrative levels", which we tested in Puerto López for the elaboration of the municipal development plan (Beaulieu et al., 2002).

This year, we presented a more general systems approach to planning in Beaulieu et al. (2004), and in didactic form and in Spanish for rural communities in Beaulieu et al. (2003). We continue to promote the visions-actions-requests as part of this general approach. The systems approach to planning encourages players to acknowledge the systematic nature of society and its environment, to realize how the groups they are part of are part of larger groups, and for leaders to understand which other systems are components that they are coordinating. It encourages players to reflect on their long-term goals (or desired future conditions), how they fit in with the goals of the systems of which they are part, and, if they are leaders, how the goals of the components contribute to the goals of the level they coordinate. It aims at:

Encouraging a greater sense of responsibility in citizens as well as leaders, through the concept of 360° responsibility, by acknowledging that coordinators of each level have responsibilities towards the levels below, the levels above, the other systems of the same level, in addition to ensuring the perpetuation (and eventually the growth) of the system they represent.

Improving interactions between players by finding complementarity between their actions, matching the actions of some players with the requests of others.

Reinforcing self-correction and learning through continuous planning, monitoring, and evaluation, rather than perceiving the latter as mechanisms of control from above.

Improving communication and the use of information by identifying the different feedback loops needed to effectively monitor and evaluate as well as to make decisions, and by identifying desired future conditions to use as a reference in diagnostics.

The obstacles to planning are often not so much methodological, but related to counterproductive mindsets. A logic of "winners and losers" often underlies political activities, where the goal of winning the election overthrows development goals. Other counter-productive mindsets include the obsession for maintenance and growth, which also overthrows development goals, as well as the culture of quick and easy gain. These can be moderated by an increased sense of responsibility (in the 360° directions), and by a longer-term vision of where we want our system to go, which can be encouraged by the use of vision-based planning methods.

CUFRUCOL (Cultivos y Frutas para Colombia)

Contributors: Adriana Fajardo, Maria Fernanda Jiménez, Genner Narváez, Nathalie Beaulieu; Libardo Rivas (BP-1)

The CUFRUCOL database was developed and reported in the PE-4 2001 Annual Report. It stores information on botanical characteristics of crops, their biophysical requirements, and production costs. It allows input of data into GIS DSTs, such as CLIMCROP, and it allows the printing of illustrated and informative cards for participatory discussion of crop options with farmers. Since 2001, it has been improved, and data have been added.

Data about botanical characteristics, biophysical requirements, and production costs were compiled for 120 crops of interest for Colombia, including grains, forages, fruits, and vegetables. These data were stored in a database in Microsoft Access format. When possible, data were taken from Colombian sources, and when unavailable, biophysical requirements were taken from the ECOCROP database developed by FAO. Users can also input their own data into the database, if they dispose of local data or data relative to specific varieties. They can also add new entries on crops not yet considered, or on combined production systems.

This database was designed to be flexible and useful for a variety of users. If adequately distributed, farmers could consult it at UMATAs. It could be used by UMATAs themselves to help farmers plan production projects that combine a variety of crops, and to make economic evaluations of different scenarios. This will help farmers plan more sustainable production projects, and will help them present well-documented projects for credits or for anticipated purchase contracts. Through the use of this tool, we aim at increasing the capacity of municipal institutions to provide technical assistance to farmers, and of farmers to access information. The distribution of this tool will be accompanied by training and notes on the importance of using this information for preliminary

indications only, giving priority to local information and common sense in planning agricultural projects.

GEOSOIL

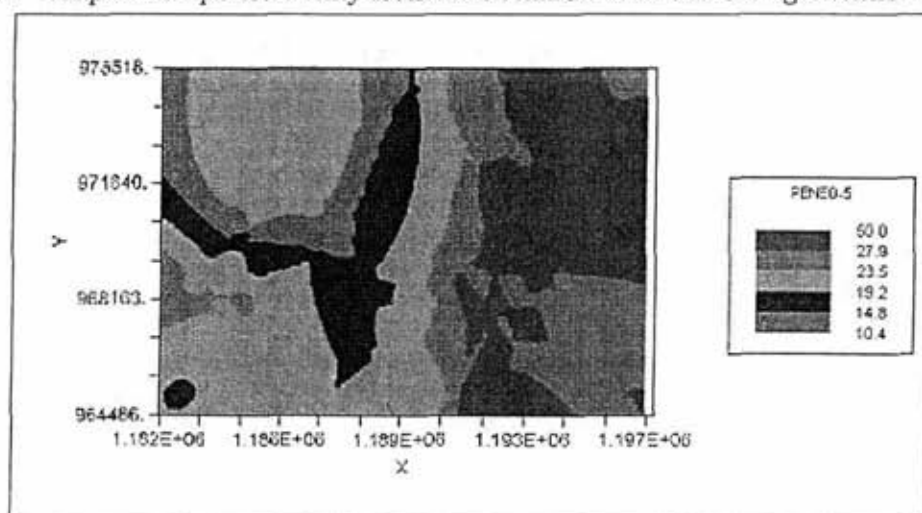
Contributors: Yolanda Rubiano; Edgar Amézquita (PE-2); Dimas Malagon (Universidad Nacional); Soil group of Corporación Colombiana de Investigación Agropecuaria (CORPOICA) Regional 8

GEOSOIL is a database tool that allows the storage of soil information for soil profiles or for soils represented in a soil map. For each new entry, it allows the user to enter the physical and chemical data that are available, without obliging the user to fill in all the fields. For soil characteristics that are not numerical, for example for texture or landforms, it allows the user to choose from a range of options, coding the choices in the process. For a number of soil properties that can be used as indicators of soil quality, it produces a report of a diagnosis, using criteria established for the Colombian llanos. It allows the comparison of soil characteristics with the requirements of a given crop and, when the necessary, chemical information is available, can produce a report of fertilization recommendations. The soil requirements can be imported from the CUFRUCOL database, or the user can specify them. It allows the export of soil data and corresponding geographic coordinates to GIS programs for their mapping, or to geostatistical programs for an analysis of spatial variability and interpolation. The preliminary developments of this tool were presented in the 2002 PE-4 Annual Report.

This year, the application of this database was completed with 1:100 000-scale soil map data for the municipality of Puerto López, generously provided by the Instituto Geográfico Agustín Codazzi (IGAC) for research purposes, extracted from the detailed agrological study for the department of Meta (IGAC, 2000). More detailed data were stored for a portion of this area, resulting from field measurements and characterization of soil samples in a portion of the municipalities, around the villages of El Turpial, Humapo, La Victoria, and Puerto Guadalupe. A geostatistical analysis was made with these point data, and raster maps of a number of soil characteristics were derived by interpolation with a kriging approach. Figure 1 shows the result of this analysis for soil penetrability. The application for Puerto López was shared with CORPOICA, but an empty structured database (which can be filled with data from other sites) is made available to the public through the CIAT Web page. A users' manual and a help module were also developed this year.

Figure 2 shows two of the displays of the database tool, regarding the comparison of soil characteristics with specific crop requirements.

Figure 1. Map of soil penetrability isolines obtained with the GS+ geostatistical



software, using field measurements in a portion of the municipality of Puerto López.

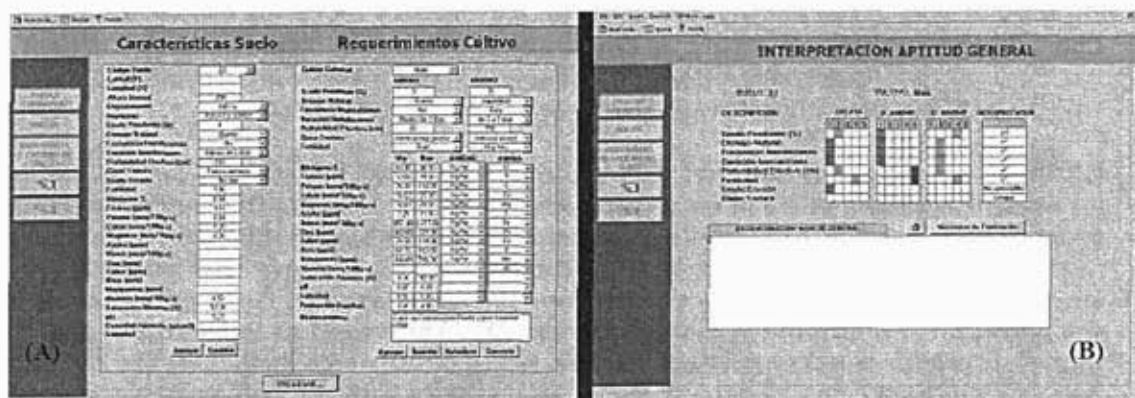


Figure 2. (A) Comparison of soil characteristics for a given soil, with the requirements of a given crop; and (B) interpretation of this comparison through a graphic display of where the coded soil characteristics stand with respect to the minimum and maximum characteristics specified in the soil requirements.

ARBOLES

Contributors: Marcela Quintero, Yolanda Rubiano, Edgar Amézquita, Phanor Hoyos (PE-2), Nathalie Beaulieu

ARBOLES is a DST that indicates land use alternatives that are most appropriate or sustainable regarding soil and topography characteristics, based on a decision tree constructed from technical and local knowledge in a given locality. It has been elaborated with Microsoft Access 2000 database software, with which the decision rules were programmed in Visual Basic. Decision rules can be applied on soil and topography characteristics specified by the user for a given location, or on the characteristics stored in a table corresponding to the polygons in a soil map. In our application for the municipality of Puerto López, we used the decision tree elaborated by Hoyos et al. (2001), and digital soil coverage elaborated by combining 1:100 000 scale soil maps from IGAC (1978) and IGAC (2000).

If the user specifies the soil and topography characteristics, the application presents a menu of soil textures and ranges of slope and effective soil depth from which to choose. As a result of the application of the decision tree, the tool proposes a range of possible land uses, the number of options increasing as soil depth increases and slope decreases. Practices for the generation of an arable layer are proposed in cases where the soil depth is low. To use a soil map and then spatialize the results in GIS software, soil and slope characteristics were coded according to the values used in the decision tree. The polygons in soil maps generally correspond to groups of soils that can have different characteristics. The percentage that each soil represents in the polygon is indicated in the tables accompanying the maps. Because there a range of different land uses is suitable for each soil type, the results of the analysis are best displayed through a series of maps, one for each land use option, where the polygons are colored according to the percentage of soil which is suitable for that option. We linked the ARBOLES application for Puerto López to both the SPRING and MapMaker Popular GIS packages. We elaborated a customized application of MapMaker for Puerto Lopez Popular with all the maps resulting from the analysis of the soil maps, for each of the

13 land use options considered.

Figure 3 shows one of the displays of this customized application for Puerto López.

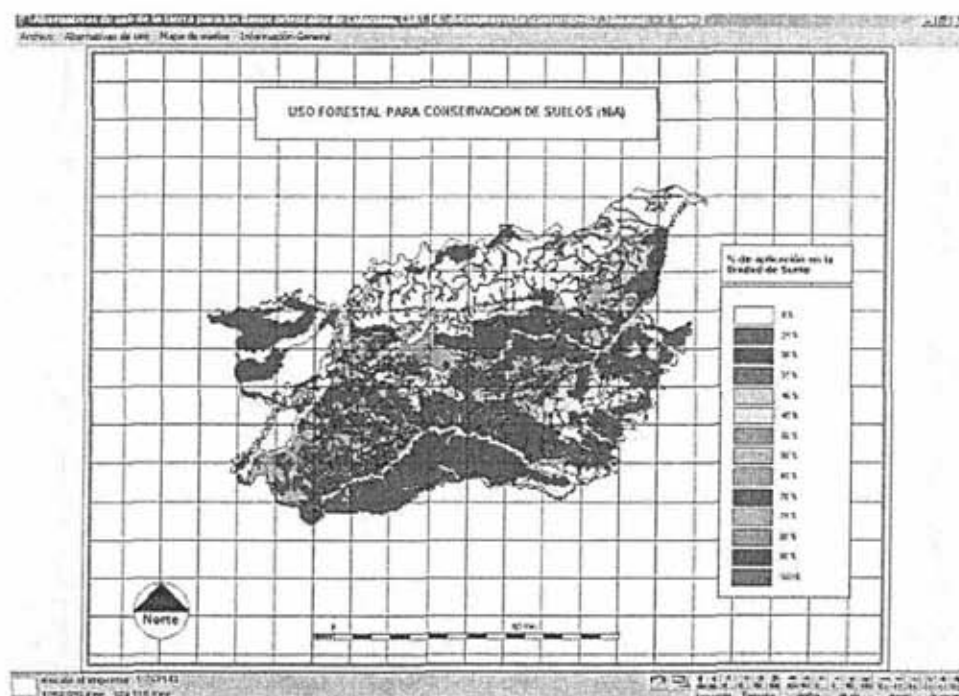


Figure 3. Mapping of areas recommended for forest use and soil conservation in function of the percentage of area of each polygon having severe soil limitations for any type of agriculture. Additionally to these soil limitations, the Código Nacional de Recursos Naturales oblige natural vegetation to be conserved along streams.

The database tool was designed to allow a modification of the decision tree to adapt it to other localities, or simply to allow experts to revise their decision rules with time. It allows the inclusion of criteria other than simply soil and topography. It could be adapted to a completely different problematic than land use. We predict that through the use and adaptation of this tool with partners, users can combine their knowledge into decision trees, work out how local stakeholders can use these, and then adjust the decision rules through monitoring the results of the adoption of the proposed options.

Preliminary developments of this tool were presented in the 2002 PE-4 Annual Report. This year, the tool was completed, a users' manual and a help module elaborated, and the tool was presented in October to potential partners and users.

SEGUIMIENTO

Contributors: Jaime Jaramillo, Maria Fernanda Jiménez; Diana Maria Pino (Secretary of Planning, municipality of Puerto López)

SEGUIMIENTO is a simple tool, developed this year in Microsoft Access 2000, which can be used for the follow-up of actions planned in territorial or development plans. It can be adapted to any plan at any level, through a detailed definition of policies, programs, and projects, indicating milestones and final goals, and indicators used for evaluating progress. The monitoring of many plans is made difficult by the absence of

clear milestones, goals, and indicators. A tool such as SEGUIMIENTO can help municipalities and other institutions structure their plans to make monitoring and evaluation more straightforward.

This tool is now being validated with the Secretariat of Planning of the Municipality of Puerto López, for the follow up of the activities planned in the PBOT and PMD. Difficulties lie mostly in the collection of information from the numerous municipal offices and partners involved in these plans, about the progress of their activities.

Organization of Seminars and Training Activities

National workshop on use of DSTs and GIS for territorial planning

Contributors: Yolanda Rubiano, Marcela Quintero, Ovidio Muñoz

Between 2000 and 2002, CIAT conducted various training activities with the support of MADR in various departments of Colombia to teach methods and GIS tools for the elaboration of territorial plans. To date, 220 public servants have been trained in Colombia.

With the objective of following up on the trainees and the activities they developed with the skills they acquired, we organized a workshop, "El encuentro nacional de usuarios de herramientas SIG para la toma de decisiones en planificación rural y Ordenamiento Territorial", at CIAT headquarters in Palmira from 13th to 15th November 2002. Fifty participants attended. The event included oral presentations, discussion sessions, a poster session, and an evaluation of needs in planning approaches, legislation, information tools, and coordination between different administrative levels.

One of the results of this seminar was the formation of a network with the workshop participants, and the other beneficiaries of training events organized on rural planning, to discuss various issues of development planning in general. This network is open to new members, and new subscriptions should be sent to Ovidio Muñoz at o.munoz@cgiar.org

The Latin American workshop on territory and sustainable development

Contributors: Jaime Jaramillo; Hubert Mazurek (IRD); Paolo Groppo, Federica Ravera (Land tenure service, FAO); International Land Coalition; CIAT rural planning team; CIAT training unit

From June 17th to 20th, CIAT-Headquarters hosted the workshop entitled "Taller latinoamericano Territorio y desarrollo sostenible", funded by the International Fund for Agricultural Development (IFAD). This workshop was organized to form a network of professionals on the themes of territory and sustainable development, to exchange experiences, and to evaluate processes and methods of participatory and negotiated territorial planning, aiming to explore implementation channels related to rural development and the management of natural resources in Latin America.

The 53 participants contributed their experience in applications or research related to land tenure and the management of natural resources, territorial planning, rural institutions, and participation. This event had representatives from academia, public administrations, international institutions, grassroots organizations, and NGOs. A CD-ROM was prepared with materials from the workshop.

Launch of tools

Contributors: Rogelio Pineda, Ovidio Muñoz, Jaime Gómez, Yolanda Rubiano, Adriana Fajardo, Maria Fernanda Jiménez, Marcela Quintero; CIAT training unit

On the 16th and 17th October 2003, at the Hotel Villavicencio Plaza, we organized a workshop for the socialization of methods and DSTs for land use planning developed during the last 5 years of the agreement between CIAT and MADR. We benefited from the participation of representatives of farmer associations and unions, the private sector, academia, regional environmental corporations, NGOs, research institutes, municipal administrations, departmental administrations, UMATAs, and other institutions involved in environmental management. There were 43 participants from 22 institutions. This has allowed us to develop partnerships with users of these methods and tools, with whom we can further co-develop and adapt them to user needs.

Training in remote sensing

In the context of the agreement between MADR and CIAT, we organized training on basic concepts of remote sensing, using the (free) GIS and image processing software, SPRING, developed by the Instituto Nacional de Pesquisas Espaciales (INPE) in Brazil. This course was organized jointly with CORPOICA Regional 8, and was conducted at the Universidad de los llanos from 21st to 25th October 2002. There were 15 participants, from institutions such as the Institut de Estudios Ambientales (IDEAM), CORPOICA, Instituto Nacional de Adecuación de Tierras (INAT), División Municipal de Aguas (DIMA), Corporación para el desarrollo sostenible del area de manejo especial la Macarena (CORMACARENA), CIAT-Santa Rosa, Universidad de los Llanos (UNILLANOS), Policía Nacional del departamento del Meta, Gerencia Ambiental y Secretaría de Planeación de la Gobernación del Meta, and Instituto Técnico Industrial.

A training course was given by Nathalie Beaulieu at the Geography Department of the University of Uberlândia, Brazil, from May 10 to 13, 2003, on Monitoring of land use/cover and land degradation with temporal series of satellite imagery. Students from the course for Masters in Geography took this course.

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Appendix: Other Project Information

Staff

Nathalie Beaulieu	Ph.D. Remote Sensing	Senior Research Fellow
Adriana Fajardo	Biologist	Research Assistant 2
Jaime Jaramillo	Civil Engineer	Professional Specialist
Maria Fernanda Jiménez	Systems Engineer	Visiting Scientist
*Hubert Mazurek	Ph.D. Ecology	Researcher
Ovidio Muñoz	Agronomist, DESS	Research Assistant 1
Rogelio Pineda	Geologist	Research Assistant 1
Marcela Quintero	Ecologist	Research Assistant 2
Yolanda Rubiano	Ph.D. Agrology	Candidate in Agronomical Sciences, Universidad Nacional in Palmira (50% InforCom, 50% PE-2)

- * Arrived in 2003, Investigator at IRD UMR 151 "*Populations, environnement et développement*", hosted at CIAT, posted in Bolivia.

Participation in Workshops and Seminars

2nd plenary meeting of the Global Forum for Agricultural Research (GFAR),
May 22-24, Dakar, Senegal.

CIAT-CIO meeting, May 26-28, Montpellier, France.

51 International Congress of Americanists, Santiago de Chile, 14-18 July 2003:
Seminar "Desarrollo local versus desarrollo global".

50 años de reforma agraria, seminario "Actores, Territorio y Desarrollo Local", 29-30 de
septiembre 2003, organizado por CEPLAG, IESE, PROMEC, CIAT/IRD.

Taller "Metodologías para la Identificación y Priorización de Demandas para la
Innovación Tecnológica en Bolivia", proyecto FOCAM-CIAT, Cochabamba, Octubre
8 y 9 de 2003.

Publications

Book chapters

Beaulieu, N.; Jaramillo, J.; Fajardo, A.; Rubiano, Y.; Muñoz, O.; Quintero, M.; Pineda, R.; Rodríguez, M.; León, J.G.; Jiménez, M.F. 2003. Planning of territorial organizations as an entry point for agricultural research towards rural development and innovation. *In*: Pachico, D. (ed.). *Scaling up and out: Achieving widespread impact through agricultural research*. Centro Internacional de Agricultura Tropical (CIAT), Cali, Colombia. (In press)

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Technical report

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Collaborators

Internationally: IRD-UMR 151, ICRISAT, TSBF, CIRAD-EMVT, CIRAD-TERA.

In Colombia: MADR, CORPOICA, Alcaldía de Puerto López, UMATA de Puerto López.

In Bolivia: Vice Ministerio de planificación y desarrollo sostenible (Dirección de Ordenamiento territorial y CODEPO) IESE and CEPLAG (Universidad de San Simón), INE-Instituto Nacional de Estadística, Municipal offices of Calamarca, Ayo Ayo, Patacamaya, Umala, Asociación de municipios de Pando.

In Peru: GTZ, CIP, CONDESAN, Municipal office of Pampacocla.

In Senegal: ISRA-CDH, ISRA-CNRF, ISRA-BAME, ISRA-LNERV, ANCAR (regional offices in Thiès, Diourbel, Fatik, Kaolak), PAFD2, Direction des Eaux et Forêts, Direction de l'agriculture.

Donors

Colombian Ministry of Agriculture and Rural Development (MADR)

Global Environment Fund (GEF)

GTZ

Viceministerio de planificación y desarrollo sostenible (CODEPO y FNUAP)

Acronyms

ANCAR	Agence nationale de conseil agricole et rural (Sénégal)
BPS	Bureau de pédologie et de sols du Ministère de l'agriculture (Sénégal)
CDH	Centre de développement de l'horticulture (Sénégal)
CEPLAG	Centro de planificación y de gestión (UMSS, Bolivia)
CODEPO	Consejo de población (Vice ministerio de planificación, Bolivia)
CNRF	Centre national de recherche sur la foresterie (Sénégal)
CRD	Conseil régional de développement (Sénégal)
CSE	Centre de suivi écologique (Sénégal)
FAO	Food and agriculture organization (United Nations)
GEF	Global Environment Fund (United Nations)
IESE	Instituto de Estudios Socio-Económicos (UMSS, Bolivia)
INE	Instituto Nacional de Estadística (Bolivia)
ISRA	Institut sénégalais de recherche agricole (Sénégal)
MADR	Ministerio de Agricultura y Desarrollo Rural (Colombia)
PRD	Président de communauté rurale (Sénégal)
NGO	Non-governmental organization
SIBTA	Sistema Boliviano de Transferencia Agropecuaria (Bolivia)
UMATA	Unidad Municipal de Asistencia Técnica Agropecuaria (Colombia)
UMSS	Universidad Mayor de San Simón, Cochabamba, Bolivia

PROJECT SW-3

108592

PRGA Program

**Program on Participatory
Research and
Gender Analysis for
Technology Development and
Institutional Innovation**

**(A CGIAR Systemwide
Program)**

Co-Sponsors:

CIAT - Centro Internacional de Agricultura Tropical
(Convening Center)

CIMMYT - Centro Internacional de Mejoramiento de
Maiz y Trigo

ICARDA - International Center for Agricultural Research
in the Dry Areas

IRRI - International Rice Research Institute

Section 1: Program Overview

1.1. Background

In 1997, the CGIAR¹ created the PRGA Program, that is, the systemwide Program on Participatory Research and Gender Analysis for Technology Development and Institutional Innovation. The Program's objective was to assess and develop methodologies and organizational innovations for gender-sensitive participatory research, and to operationalize their use in plant breeding, and crop and natural resource management. The idea and plan for the Program were the result of a seminar held in 1996 among a group of 50 research and development professionals representing a range of different types of institutions and the world's major regions. All were highly experienced in participatory research and gender analysis (PRGA), gathering together to address the priority issues and challenges in the field. Although much had already been achieved through on-farm adaptive research by the time this meeting took place, there was a perception that the impact of user participation in agricultural research—whether as researchers, decision makers, and priority setters—could be more profound and durable.

Focusing on the need to stimulate the inclusion of a user perspective, particularly that of women, in pre-adaptive research, the participants of the planning meeting determined that an urgent need existed to "strengthen, consolidate, and mainstream gender analysis and participatory research in a high-priority, high-visibility program that recognizes farmer participation as an important strategic research issue". The idea was to pool resources and knowledge within the CGIAR system to accelerate the development of new methodological tools, capacities, and institutional strategies for participatory research (PR).

Because of its recognized leadership in this area, CIAT was asked to convene the Program. Three other CGIAR centers—CIMMYT, IRRI, and ICARDA—agreed to act as co-sponsors.

The strategy and structure of the Program were designed for the task at hand. Three decentralized working groups were formed. These were the Participatory Plant Breeding Working Group (PBG), the Participatory Natural Resource Management Working Group (PNRM-wg), and the Gender Analysis Working Group (GA-wg). Each had a representative in the planning group, and each made a 5-year work plan that has provided the basis for the annual agenda of work and budgeting. The elements of the GA Group's work plan were substantially planned into the PBG and PNRM Group's 5-year work plans to ensure integration of gender with these areas of work.

In 1997, the CGIAR Gender Program, which had been staffed from the CGIAR Secretariat, was formally incorporated into the systemwide PRGA Program.

The working groups comprise practitioners from IARCs, national agricultural research institutes (NARIs), NGOs, and indigenous research systems, mixing expertise from both the biophysical and social sciences to implement a common work plan. The members meet periodically at the Program's biannual international seminar, at research workshops, and at field sites. An important mode of work is through e-mail networks. While each working group has its specific work plan, the three have in common four

1. For an explanation of this and other acronyms and abbreviations used in the text, see Appendix 15.

elements that form the main thrust of the Program's approach: methodology development, capacity building, partnerships and networks, and institutionalization.

The PRGA Program is now 6 years old. Together with its partners, the Program has been a factor in creating a strong momentum to implement participatory approaches not only within the CGIAR system, but also on a broader scale. Many respected scientists and practitioners are using these approaches in their research, and demand is growing (although as yet, unmet) for training. The Program has shown that PRGA embodies rigorous methods that are scientifically grounded.

The Program's work has built a body of evidence that shows that these methods are delivering broad impact by producing technologies and resource management options that are well suited to end users' needs, thus significantly reducing the possibility of farmers rejecting newly developed technologies. In addition, PR is producing "process impacts", resulting in, for example, increased human and social capital, which is essential to the sustainability of rural development and innovation. Among those who benefit most from the implementation of these approaches are the *most needy*—women, the very poor, and marginal groups—who are often overlooked by conventional research. Finally, the PRGA Program has demonstrated how participatory and gender-sensitive approaches can be cost efficient because of their increased impact and reduced time overall to produce relevant technologies.

1.1.1.1. New directions since 2002

1.1.1.1.1. Lessons learned

Although the PRGA Program has made considerable progress, as outlined above, several lessons have been learned from these achievements. These are summarized as:

Absence of a core of PRGA expertise in the CGIAR. A survey conducted among the CGIAR centers shows that the total amount invested in PRGA activities is US\$27 million. This amount is spread among 144 projects across 16 centers in the CGIAR, leading to extreme fragmentation of human and financial resources, and thus prompting the question: is investing resources in PRGA activities paying off?

Unmet demand for capacity development. The predominance of a researcher-led type of participation in research, combined with highly limited use of gender analysis (GA) methods, has led to a huge and unmet demand for capacity development, particularly in the CGIAR centers. But capacity development efforts will not have lasting impact if these are not accompanied by organizational change.

Learning and experimentation with methods is widespread. Evidence from impact case studies also demonstrates that the use of PRGA methods in research generates a process of learning and change, particularly in method innovations that result from farmer's feedback. Results of impact case studies conducted with ICRISAT, ICARDA, World Neighbors Canada, and WARDA demonstrate that user participation lead to feedback that change priorities and practices of research institutions. Systematizing methods and learning, together with capacity building to use PRGA methods more effectively, have contributed to scaling-up, that is, reaching more people more quickly.

Learning and change does not extend to organizations. However, learning and change remain at project level. The absence of feedback from project to organization has implications for learning to be sustained beyond the project's life.

1.1.1.2. Objectives

Hence, while it is important to continue with efforts to build compelling evidence of impact, there is a real need to focus attention on developing capacity for PRGA, combined with organization-development skills for their institutionalization. More specifically, the strategy for the PRGA Program's phase 2 will focus on the following:

Capacity development in methods that ensure gender-equitable, stakeholder-client representation in research decision making; and networking within a cadre of champions who support each other and who can make a difference.

Continue to build compelling evidence of impact.

Develop action research partnerships to institutionalize PRGA approaches within a core of IARCs and NARS.

Communications and partnerships for disseminating information and devolving Program activities, responsibilities, and decision making to stakeholders.

1.1.2. Overview of progress, 2002-2003

Outputs for 2002-2003 included:

State-of-the-art analyses were published as PPB Monographs. These four commissioned documents, now completed, are extensive studies on participatory plant breeding (PPB) and gender analysis (GA).

More than 120 case studies of PPB were identified and described for the PPB inventory, now available on the PRGA Program's Web page.

Fifteen PPB reports from projects funded by the PRGA Program were received and published.

PRGA Program scientists advised and partially supported three PhD students working in the PPB field.

The Program's impact assessment research has established and maintains an inventory of participatory projects. It conducts impact studies in collaboration with various research institutes, and engages in methods development, and capacity building in impact assessment of participatory approaches with partner institutions.

Several Intra-Center Committees were established to foster organizational strategies for PRGA work.

Methods for integrating plant breeding (PB) and natural resource management (NRM) into joint projects were developed.

A book entitled *Managing Natural Resources for Sustainable Livelihoods: Uniting Science and Participation* was submitted to co-publishers, Earthscan and IDRC,

in July 2002. An external review was completed in September 2002 and the book was published in August 2003.

Several weaknesses in the PRGA Program's Web site were identified. The Program decided to upgrade the contents of the existing Web site, while developing a **new Web site** with improved navigation, search ability, and interactivity.

With strong support from the senior management at JIRCAS and from the Lao-CIAT Forages and Livestock Systems Project, the PRGA Program designed and facilitated a workshop entitled *Improving Adoption of Agricultural Technologies*.

The Program collaborated in the publication of several papers.

The PRGA Program co-hosted, with the System-wide Genetic Resources Programme (SGRP), a workshop on *The Quality of Science in Participatory Plant Breeding*. Held at IPGRI, Rome, from 30 September to 4 October 2002, the workshop assessed critical advances in the social and biological sciences shaping PPB practice, and evaluated the breadth of its impact to date.

At the same workshop, the PRGA Program presented a paper on the *Benefits and Costs of Decentralized Participatory Barley Breeding at ICARDA, Syria*.

The Program presented another paper on *Why has impact assessment research not made more of a difference?* at an international conference on the impact of agricultural research and development. The conference, entitled *Measuring the Impact of User Participation in Natural Resource Management Research*, was organized by the CGIAR's Standing Panel on Impact Assessment (SPIA) for 4-7 February 2002, at San José, Costa Rica.

Paper presented on the *Impact of Participatory Research and Gender Analysis in Plant Breeding* at the 2002 CGIAR Annual General Meeting in Manila, the Philippines.

Organized the PRGA Stakeholder Meeting for 30 June–1 July 2003, held in Cali, Colombia.

1.1.3. Logical framework for the PRGA Program's second phase

The objectives of the Program's future strategies have been formed by a synthesis of experiences—generated from the Program's accomplishments and lessons learned—that was combined with consultations with stakeholders and recommendations from the Internally Commissioned External Review (ICER). The objectives for the second phase are listed below:

1.1.3.1. Outputs and activities

The PRGA Program's outputs and activities tend to fall into groups, according to the Program's objectives. These are:

- i. Develop a capacity to encourage gender-equitable, stakeholder-client representation in research decision making, and networking within a cadre of champions who support each other and who can make a difference

Generate methods for using gender and/or stakeholder analyses for technology development

Promote organization-development skills and planning
Development of concepts and skills for impact assessment
Create a network within a cadre of champions who support each other and who can make a difference

ii. Continue building compelling evidence of impact

Conduct empirical studies on participatory research methods in PB and NRM
Develop and disseminate tools and methods that enable scientists to capture the impact of products and processes, and integrate learning from impact assessment into research planning and adaptation (learning and change)

iii. Action research partnerships on institutionalizing PRGA approaches with a core of IARCs and NARS

Conduct institutional assessments with partner organizations to assess opportunities and constraints for institutionalizing PRGA methods
Form partnerships with organizations that enable the PRGA Program to have a major impact on (1) integrating PRGA into agricultural research, and (2) enhancing methods and approaches that contribute to improving the livelihoods of the very poor, particularly rural women
Develop tools that go beyond generic gender diagnosis and analysis to (1) enable the design of tailored analyses, and (2) guide researchers in interpreting GA results so they may effectively address their implications in research planning and adaptation

iv. Communications and partnerships for disseminating information

PRGA interactive Web site

Dissemination

Publications

Enhance the support function of the working groups PBG, PNRM-wg, and GA-wg

1.1.3.2. Gains

These include:

Greater access to a global exchange of PRGA expertise among a wide range of institutions.
Accelerated learning from experiences; and new, widely applicable, methodologies for PRGA generated.
Considerable savings and increased impact from NARS generated by better-designed technologies.
Indigenous systems of crop development and NRM strengthened and integrated with formal research in a mutually reinforcing way.
Poor rural women become meaningful participants in research and its beneficiaries.
Greatly accelerated development and adoption of diverse germplasm in major food crops.

1.1.3.3. Users

Poor rural farmers, IARCs, NARIs, NGOs, and rural grassroots organizations

1.1.3.4. Collaborators

IARCs, NARS, NGOs, grassroots organizations, and universities

1.1.3.5. CGIAR system linkages

The main ones focused will be Enhancement and Breeding (25%), Crop and Livestock Production Systems (25%), Protecting the Environment (30%), and Organization and Management (20%).

Note:

See Appendix 1 for a description of the PRGA Program's logical framework, and Appendix 2 for details of the distribution of the Program's budget allocations.

1.2. Strategies

During 2003, the PRGA Program goals have been adapted as a result of lessons learned from activities in phase 1 and of inputs received from various consultations with stakeholders during the same period. As a result, the major focus for the second phase, beginning 2003, will be on the following strategies:

Mainstream PRGA approaches.

Increase the development of capacity in GA, PR, impact assessment, and use of organization-development concepts and tools.

Institutionalize these approaches within the organizational context.

Continue to build evidence of the impact of using gender-sensitive, participatory research methods.

Develop action research partnerships to institutionalize PRGA approaches within a core of IARCs and NARS.

Develop communications and partnerships for disseminating information.

Devolve the Program's activities, responsibilities, and decision making to stakeholders.

The following briefly describes the most important facets of these strategies.

1.2.1. Mainstreaming PRGA approaches

Mainstreaming the Program's outputs is critical to its success. Client-oriented research and development (R&D) requires skilful interactions between researchers and end users of technology to ensure that innovations are appropriate and rapid adoption occurs.

Mainstreaming the use of PRGA will have been achieved if these research approaches and principles are:

Widely accepted by donors, IARC management, and scientists as valid for achieving scientific research goals (e.g., soil analysis and gender analysis have equivalent legitimacy and validity as research tools).

Used scientifically in a discriminating fashion to improve research in the CGIAR system—not for advocacy or for the sake of appearances.

Assigned sufficient resources at the system level to enable IARCs to apply the approaches and methods when needed to solve priority research problems, to learn from one another's experiences, and to conduct strategic research for developing new applications and cutting-edge methodologies.

Applied to increase gender-equitable stakeholder and client participation in relevant research processes and decisions so that feedback to research, and research efficiency and effectiveness are improved; technology appropriate to different stakeholders is developed; and adoption rates increase among the CGIAR's priority client groups such as poor rural women.

Used by IARCs to develop and promote collaborative research partnerships that incorporate gender-sensitive stakeholder and client participation and contribute to empowering poor rural women to access new opportunities through technological innovation.

Used to encourage gender-equitable stakeholder and client representation in CGIAR external and internal reviews, impact assessment, and consultations for strategic planning.

Integrated into the structure and culture of the organization. Specifically, PRGA approaches and principles would be reflected in terms of reference (TORs) and personnel evaluation systems of researchers; incentive systems at the organizational level; policy statements of the organization; core funding within the organization.

1.2.2. Partnerships based on collaborative advantage

Given the complexity of research problems, the Program was designed for implementation through interinstitutional collaboration. A special task force at the Systemwide Planning Meeting developed the principles guiding these partnerships. Partnerships among IARCs, NARIs, NGOs, and governmental regional offices (GROs) are to be decentralized. Methods are to be introduced into ongoing projects, consistent with their priorities. Emphasis is given to horizontal arrangements where collaborative advantages are sought. The goal is to create a synergy between and among collaborators so that, together, they may produce or accomplish something new that cannot be done by any one organization. Table 1a shows the Program's partnerships:

The principles for successful partnerships adopted by the Program are:

Compelling, shared vision and sense of purpose.

Strong, skilful, shared leadership that purposely seeks to create collaborative advantage.

Shared problems of definition and approach.

Guidelines for using methodologies and organization innovations based on comparisons across agro-socioeconomic environments, technologies, and user groups.

Common learning process derived from sharing global experiences.

Power equity.

Interdependency and complementarity.

Cost-effective divisions of research labor as a result of joint research and development capacity.

Mutual accountability.

Building on ongoing IARC research where possible, with 50/50 co-financing by the Program when partner institutions agree to contribute at least 50% of the resources needed for collaborative activities.

Table 1a. The PRGA Program's partners in innovation.

Continent	Partners ^a	
	Int'l or regional	Country of project
Africa	CIMMYT	Yemen
	ICARDA	Syria
	ILRI	Tanzania
	IPGRI	Malawi
	WARDA	Zimbabwe
	AHI (ICRAF)	Uganda
	SWNM (SP)	
Asia	Himalayan network	Nepal
	UPWARD (CIP)	
	LI-BIRD	Nepal
	CIMMYT	
	SRBLI	
	IRRI	
	IPGRI	
Latin America		Bolivia
	CIAT	Colombia
	CIP	Peru
	TLAP (SP)	Ecuador
	IPCA	Honduras
	EAP-Zamorano	Honduras
	CBN	Brazil

For an explanation of the acronyms and abbreviations, see Appendix 15

1.2.3. Gender analysis

Using GA as a research tool is basic to developing technology aimed at alleviating the poverty of severely disadvantaged social groups—especially poor rural women. The Program's strategy is to:

Promote the use of GA.

Not only understand the implications of women's existing roles and responsibilities in agriculture and NRM for technology development and institutional innovation, but also identify new opportunities for innovation that involve a concomitant change in women's status.

Integration is more effective than isolation; thus GA is a central component in the Program's research, capacity-building, and partnership-development activities. Analysis of differences among stakeholder groups is a first step in designing a good PR agenda. Gender analysis, together with the analysis of other differentiating characteristics within and among groups of technologies, can help ensure that technologies will be useful and used.

The focus is on mainstreaming gender and/or stakeholder analysis principles, methods, and tools in PB and NRM research so that their use becomes an integral part of the processes of research design and implementation within the CGIAR system.

Participatory research in PB and NRM integrates GA into the research process and involves:

Diverse stakeholder groups.

Our capacity-building strategy gives our partners the skills needed to integrate gender and stakeholder analysis and partnership principles as critical components of the PR processes in which they are involved.

Our information dissemination and public awareness activities make visible the needs of both men and women innovators and users of technology.

The Program develops criteria for assessing the extent to which GA and user involvement in the research process have been achieved and what impact they have had.

The Program does not limit itself to gender as the sole user-differentiating variable for women in PR just for the sake of involving them, but also to build skills in GA outside the context of PB and NRM research, and to advocate gender-staffing policies per se.

The Program itself should be an example of gender-sensitive stakeholder participation in its own organizational structure, and functions to serve as a "learning lab". Gender-sensitive stakeholder representation is sought in all the Program's collaborative partnerships at all levels—from the Advisory Board that advises management to the formation of stakeholder committees in projects receiving small grants.

1.2.4. Capacity building

In phase 1, the strategy for capacity development focused largely on the use of methods and approaches for conducting PRGA. Specifically, these were:

Gender and stakeholder tools and methods.

Research approaches built on sound use of gender and stakeholder analyses.

Participatory research methods, processes, and skills for NRM and PB.

Forming and sustaining effective partnerships for participation.

Methods, tools, and procedures for impact assessment, participatory monitoring, and evaluation.

Additionally, capacity for on-going projects, using PRGA approaches, was supported through a small grants program (Appendix 3). An inherent objective of the small grants was to build local capacity through learning workshops that the PRGA Program supports. Recipients of the grants were committed to conducting a joint workshop or seminar in their own institutions to expand awareness of the results of PRGA approaches, to promote exchanges with NARS, and to participate in international events sponsored by the Program.

The Program also promotes awareness building, involving donors and senior management of the CGIAR centers (Appendix 4).

For phase 2, the strategy for capacity development will focus more specifically on building capacity to encourage a process of gender-equitable, stakeholder-client representation in research decision making. This will require enhancing capacity in the following areas:

Methods for using gender and/or stakeholder analyses for technology development.

Skills and planning in organization development.

Concepts and skills for impact assessment.

Networking within a cadre of champions who support each other and who can make a difference.

1.2.5. Impact assessment

The PRGA Program's goal in its impact assessment work during the first phase (1997-2002) was to provide compelling evidence of impact of gender-sensitive participatory research.

The strategy to provide that evidence had three components:

Develop original impact assessment frameworks tailored to the particularities of assessing the impact of a method, as well as develop specific tools for impact assessment.

Conduct several collaborative empirical studies on applying these frameworks and tools.

Build capacity through networking for mutual support and learning among the users of participatory methods.

The PRGA Program's stakeholder meetings during 22-23 April 2002 (Bonn, Germany) and 30 June-1 July 2003 (Cali, Colombia) endorsed the idea that the current impact assessment strategy had been effective, and that the same strategy should be continued during the second phase. The Cali meeting also proposed placing greater effort on enhancing the usefulness of impact assessment as a tool for institutional learning and change.

1.3. Five-Year Synthesis Report

This *Synthesis Report* tells the story of 5 years of PRGA Program activities on a global scale and captures the essence of the Program's achievements during its first phase (1997-2002).

Because each of the four strategy elements—methodology development, capacity building, partnerships and networks, and institutionalization—has been the thrust of the PRGA Program's activities and has contributed substantially to its impact, they will be recurring themes throughout the report.

1.3.1. Major findings

1.3.1.1. Scientific

The PRGA approach embodies rigorous systematic methods that are scientifically grounded and whose results are valid.

1.3.1.2. Delivering broad impact

Compared with conventional research, participatory approaches produce technologies and resource management options that are better suited to end users, thus increasing the economic benefits from adoption. In addition, participatory research produces impact on processes, thus helping to generate human and social capital, and is therefore more enduring than is the impact of most other technologies.

1.3.1.3. Beneficial to women, the very poor, and marginal groups

Enables research to target these groups who are often overlooked by conventional research; and helps scientists understand the relationships among women and men farmers and/or stakeholders and how these affect, and may be affected by, research and development interventions.

1.3.1.4. Cost efficient

Reduces the overall time required to produce relevant technologies, and significantly reduces the possibility that technologies are rejected by farmers once they have been developed.

1.3.1.5. Widely used, with a growing demand

Many respected CGIAR scientists are using PRGA approaches in their research, and demand, as yet unmet, is growing for training in the scientific use of PRGA methods in agriculture.

1.3.2. The five major accomplishments

The Program's five major accomplishments over 2002-2003 are:

1.3.2.1. Global assessment of the state of the art and emerging issues

Participatory research and gender analysis is being implemented in many places around the world. The institutions, purpose, and way in which the approaches are implemented vary. As a result of several key studies commissioned and/or conducted by the PRGA Program, as well as an extensive inventorying process, we now have a global benchmark of the quantity, quality, and scope of participatory and gender-sensitive research being conducted around the world by different types of institutions. For example, we can know what types of institutions are using which types of participation at different stages of their research projects, with what objectives and results. A close assessment of these cases tells us the main achievements and obstacles, and also the emerging challenges and issues for further research.

1.3.2.2. Demystification of participation and gender analysis

As a scientific community we now know much more about the variable nature, and potential applications of PRGA. Not all participation is the same. We know that an array of different "divisions of labor" between farming communities and researchers can be used during various stages in the research process to produce distinct outcomes. The institutional environments in which these research approaches are implemented

also affect the way in which the research unfolds. Moreover, we have learned that different kinds of participatory approaches give diverse clusters of both product and process impacts that bear on the well-being of rural communities. These findings help us make sound judgments about when and how to apply participatory and gender-sensitive methods when planning our research.

1.3.2.3. Support and engagement in cutting-edge research

As a strategy to push forward the field of participatory and gender-sensitive research, the PRGA Program has run a competitive small grants program. So far, 9 projects have been funded for work in NRM and 13 projects in PPB. Results show that good progress was made in addressing gender needs.

Although the small grant projects have been the PRGA Program's main arm in the field, Program staff have also engaged directly in cutting-edge research. For example, a Program staff member, together with outside legal expertise, have conducted a study that addressed the challenging issue of how to attribute intellectual property rights that emerge from collaboration between researchers and farming communities. This work is beginning to fill a major gap in the international arena, where current agreements draw prime attention to plant breeders' rights and farmers' rights, but fail to address the division of benefits that could result from collaborative work.

1.3.2.4. Rigorous evaluation of the impact and costs of participatory approaches

Appreciating compelling evidence of the impact of using participatory approaches is the only way that scientists and research managers will begin to incorporate these approaches into their research. While impact of participatory research is recorded, the differential effect of using participatory, in contrast to other, approaches has rarely been systematically analyzed and documented; nor has the effect of using varying types of participation during different stages of research been assessed.

The PRGA Program has developed and applied tools for empirical impact studies in both PPB and NRM. Four impact cases studies have been completed and three more are in progress and expected to be completed. Both impact and costs were studied, with a focus on documenting impact of processes in different types of participatory research, as well as impact of involving farmers at different stages of research. The studies evaluated impact on technology and adoption, human and social capital, and feedback to formal research.

Initial findings suggest that higher degrees of farmer involvement and control in research yield higher levels of empowerment; give voice to farmers' technology priorities, including women's priorities; speed up technology adaptation; increase human capital; boost adoption; and have positive impact on farmers' profits. Empirical evidence also exists that participatory research reduces the costs of developing technologies that are not adopted by intended users.

1.3.2.5. PRGA community of knowledge and practice

To facilitate the use of participatory approaches, the PRGA Program has used several strategies to build and articulate or network a community of knowledge and practice. We have stimulated a worldwide exchange of expertise through various listservs, organized three biannual international seminars that gathered over 500 PRGA practitioners from around the world, created three publicly accessible databases with information on projects using these approaches, and established a network of PRGA

liaisons and gender focal points in all the CGIAR centers. In addition, Program staff have organized and participated in numerous training workshops on PRGA methods. Several training manuals have been published.

1.4. Program Organization

1.4.1. Staffing

To provide a core of outstanding scientific capacity that can be deployed to work with individual IARCs or other inter-center initiatives and programs, the Program maintains a nucleus of internationally recruited specialists who support collaborative research and capacity building. Program staff facilitate identification of research opportunities and needs, contribute to training, support the synthesis and international exchange of lessons learned among the various participants, and promote the dissemination of results.

Staff (Appendix 5) are being recruited as funding permits and outposted to partner institutions to reinforce the research of IARCs and our partners, as well as carry out capacity building. The PRGA Program's principal staff, based at CIAT, are:

Barun Gurung, PhD Anthropology, Senior Research Fellow
Coordinator, PRGA Program

Nina Lilja, PhD Agricultural Economics, Senior Scientist
Impact Assessment

Ralph Roothaert, PhD Crop and Weed Ecology, Senior Scientist at the Forages
for Smallholders Project
Joint appointment with CIAT and ILRI, Addis Ababa, Ethiopia

1.4.2. Advisory Board

1.4.2.1. Role

The Advisory Board's role is three part: to guide the functioning of the PRGA Program toward its main goal and aims, to provide general advice to the Coordinator of the Program, and to participate in resource mobilization for the Program.

1.4.2.2. Objectives

To establish the Program's guidelines, principles, and policies.

To advise the Coordinator on strategy, including fund seeking, networking, planning, and evaluation.

To represent the Program in international forums.

1.4.2.3. Frequency and location of Advisory Board meetings

The Advisory Board meets regularly once a year, although meetings can also be called on an ad hoc basis, depending on the Program's needs. However, during its 30 June-1 July meeting, held in Cali, Colombia, the Advisory Board made the following decisions on its meetings:

The Board will meet electronically every 6 months, dates to be scheduled by agreement 12 months in advance. The Coordination will make a brief report on progress at this electronic conference.

A definite schedule of PRGA Annual Board Meetings will be agreed upon and board members will be asked to firmly commit themselves to this schedule 12 months in advance.

An annual meeting will be held every year in the last week of June, with the location to be agreed on each year—it will probably rotate from one Board member's location to another.

A budget line item for the Board meetings will be explicitly designated.

The schedule for the next five years is as follows:

2004 PRGA Board Meeting No. 6—Monday, 28 June to Wednesday 30
2005 PRGA Board Meeting No. 7—Monday, 27 June to Wednesday 29
2006 PRGA Board Meeting No. 8—Monday, 26 June to Wednesday 28
2007 PRGA Board Meeting No. 9—Monday, 25 June to Wednesday 27
2008 PRGA Board Meeting No. 10—Monday, 23 June to Wednesday 25

1.4.2.4. Composition of the Advisory Board

The Advisory Board is composed of nine elected members:

Three representatives, one elected from each of the three working groups.

Five representatives, one elected from each of the stakeholder groups in the initiative:
NARIs, NGOs, IARCs (not including the convening center), donors, and farmers.

One member from the convening center.

The Advisory Board will have a regional and gender balance. Current Board members are:

Jacqueline Ashby
Convening Center representative
Director, Natural Resource Management
CIAT

Aden A. Aw-Hassan
NRM representative
Coordinator, Dry Land Resources Management Project
ICARDA

Position vacant
NARS representative

Gordon Prain
CGIAR representative
CGIAR/SIUPA
c/o CIP

Position vacant
Donor representative

Janice Lesley Jiggans
Gender representative
Department of Rural Development Studies

Monica Kapingiri
NGO representative
KAMPALA, UGANDA

Bhuwon R. Sthapit
PPB representative
Senior Rice Breeder
Nepal Agricultural Research Council (NARC)

Farhad Mazhar
Farmer representative
Managing Director
UBINIG, India

1.4.2.5. Duration of terms

Advisory Board members shall each serve a term of 3 years.

1.4.2.6. Means of appointment

Membership to the Advisory Board will be proposed:

Either by an ad hoc nominating committee, made up of current Advisory Board members, from candidates nominated by current members of the PBG, PNRM-wg, and GA-wg and endorsed by the Advisory Board as a body.

Or at an acceptable stakeholder forum.

Section 2: Participatory Plant Breeding **Working Group (PBG)**

2.1. Overview

Participatory plant breeding (PPB) is a major thematic area of the PRGA Program's work. The Plant Breeding Group (PBG), established in 1996, initially identified four key outputs for advancing the field of PPB:

To assess and develop effective participatory methods in plant breeding, with a focus on farmer-led breeding, plant selection (segregating lines), and variety selection (fixed lines).

To involve and target beneficiary groups in PPB² through the development of social methods for working with users and better anticipating their needs.

To identify and develop effective ways of organizing PPB in research.

To ensure user access to the products of PPB through appropriate seed system support.

The PBG subsequently identified a fifth area, which is critical to the development of sustainable and equitable PPB:

To ensure users can access the products of PPB through identification of appropriate property rights and other forms of benefit sharing.

2.2. Work Plan

2.2.1. Outputs

Assessed and developed effective participatory methods in plant breeding, with focus on:

Breeding by farmers
Plant selection (segregating lines)
Variety selection (fixed lines)

Developed methods for involving direct and indirect stakeholders, thus accurately targeting beneficiary groups and involving them in PPB.

Identified and developed effective organization forms for operationalizing PPB in research.

Assured user access to products of PPB by identifying effective organizational forms and links to supporting seed services.

2.2.2. Activities

Inventory and compare existing participatory methods across crops and environments.

Identify and compare existing strategies for strengthening farmer-led breeding (in reference to self-pollinated, open, and vegetatively propagated crops).

Implement experimental research to compare classical breeding approaches with participatory plant selection and participatory variety selection in reference to the three crop types.

Assess impact of various participatory strategies on the three crop types and across diverse environments with respect to farmers' objectives such as yield stability, production, and genetic diversity.

¹ For an explanation of this and other acronyms and abbreviations used in the text, see Annex 15.

Disseminate results and relevant methods by crop type and environment, and according to priority goals.

Identify opportunities for institutionalizing relevant PPB methods by crop type and environment, and according to priority goals.

Revise diagnostic methods for assessing stakeholder preferences for plant varieties in the short, medium, and long term.

Assess methods to involve users in plant breeding, differentiating them by type, for example, gender, wealth, and end use (e.g., consumers, processors, and seed producers).

Analyze the social and economic impact of various PPB methods on different users.

Analyze the costs of alternative participatory methods to involve different users in plant breeding.

Revise methods for assessing indirect stakeholder roles and needs.

Synthesize findings on how to involve hidden and indirect stakeholders in participatory approaches.

Synthesize case study findings on how to resolve conflicts among diverse users and stakeholders in germplasm resources.

Publish guidelines on the cost-benefit ratios of different approaches to involve and target differentiated users.

Inventory and compare different divisions of labor among farmers and breeders in the breeding process.

Revise the ways that existing breeding programs organize and fund links with farmers.

Identify promising links and innovations.

Partners of organizational innovations also monitor and evaluate (including conducting cost-benefit analyses of different links and forms) those innovations for PPB.

Formulate guidelines for decision makers on promising organizational forms.

Revise communication tools for improving farmer-scientist interactions.

Assess various methods and tools for understanding local seed systems.

Identify strategies for strengthening local seed systems.

Revise and develop methods to link participatory approaches in breeding with local seed systems and markets.

Identify incentives and roles of CBOs and NGOs in enhancing seed and seed information flow.

Explore constraints and opportunities to include products of PPB in existing regulatory frameworks.

2.3. Capacity Building in Participatory Plant Breeding

2.3.1. “Quality of Science” meeting, Rome

The workshop on *The Quality of Science in Participatory Plant Breeding* was held at IPGRI's headquarters, in Rome, from 30 September–4 October 2002. It resulted from a key recommendation made by the panel of the Systemwide Review of Plant Breeding Methodologies in the CGIAR (October 2002), which suggested that PPB approaches be considered as among CGIAR's core breeding strategies.

Although the meeting was small, with 35 participants, it brought together some of the leading practitioners in PPB within the Future Harvest Centers and 7 representatives of the genetic resources area in different centers. On recognizing that important innovative and creative work in PPB was developing within regional and national networks, and civil society groups, the workshop also drew expertise from Mesoamerican PPB networks, the South Asian “Using Agricultural Diversity” Network, SEARICE, CIRAD, FAO, University of California, the DFID-supported plant science programs, and the NARS of Brazil, China, Cuba, Malawi, and Solomon Islands.

The workshop's overall brief was to assess those critical advances in the social and biological sciences shaping PPB practice, evaluate the breadth of its impact to date, and identify key scientific challenges. A multi-institutional organizing committee debated long and hard to focus this broad brief into six key topics (Appendix 6). Plenary sessions and subsequent working groups were organized around the following issues: what we know, what we don't know, and how we should design R&D work to move a given issue forward.

Truly novel research developments were presented in the realm of PPB: priority setting, on-farm trial design and experimentation, impact and cost-benefit assessment, property rights, and biotechnology (particularly “participatory” molecular marker-assisted selection). Those integrative approaches that aim to better link the production objectives of PPB with the more holistic aims of genetic resource management and empowerment were also explored in detail. Finally, the group outlined an explicit agenda for action in “priority areas in PPB”, including the need to work on seed policy and regulatory reform to ensure that the products of PPB actually reach the intended end users, particularly the world's more marginal men and women farmers.

2.3.2. Plant Breeding Group consultation

In August 2002, the PRGA Program's Coordination initiated a consultation process with the PBG about future directions. The following questions were posed:

What is your opinion of the value and functioning of the PBG?

What type of structure do you feel would best suit the purpose of PBG?

If you feel devolving management of the PBG to its members is desirable, which functions do you feel should be managed by group members and which should be managed by the PRGA Program?

If you feel that changes should be made to the current structure of the PBG, how would you propose operationalizing these changes?

Are there other comments, questions, or observations you would like to make on any aspect of the PBG or about the PRGA Program in general?

See Appendix 7 for the feedback received.

2.3.3. PBG minutes

2.3.3.1. Role and contributions on institutionalization

To institutionalize PPB, changes must be made in variety release systems and seed production.

Develop a monograph on PPB for students and researchers and/or practitioners in PPB.

Strengthen policy influence from both international bodies and grassroots levels.

Draw lessons from case studies of PPB institutionalization

CGIAR and FAO to work together to influence policy on seed systems and seed regulation.

Conduct policy workshops that include ministers, technocrats, NARS, and farmers.

2.3.3.2. Developing methods for integrating PPB and NRM into joint projects

For example, to integrate clean-seeds production systems with participatory NRM

2.3.3.3. PPB feedback on strategy

PBG representatives proposed working with other selected representatives to provide feedback from the broader group membership, using listserv e-mail, on future directions and strategies of both Program and Working Group. Although all members are free to structure their own consultation process, below are types of questions that may prove useful. These were synthesized from contributions by Bazile, Ceccarelli, Grando, Kimani et al., Lançon et al., Snapp, Stroud, and consultations with PBG members (November 2002).

What are your initial reactions to the 2003-2007 PRGA Program's logframe (Appendix 1)? Are there areas where you have questions or need further clarification? Are there particular items for which you wish to express support or raise concerns?

SUMMARY:³ Stakes mentioned in the logframe look determinant for the future of all research institutions. However, two aspects are not clear: (a) integrated participatory research that could generate real innovation, and (b) participation mechanisms enabling users and researchers to innovate.

Attached is a summary of the feedback to the PRGA Working Group Consultations held last year. What do you see as being the major implications of the responses received for how the Group should move forward? Do they imply any changes for how the Group is organized, managed, or functioning? If so, how?

SUMMARY: All members agree that the PRGA Program's PBG has done tremendous work in, for example, building a network, generating and building collective knowledge on field cases, collecting data, distributing information, and conceptualizing. They suggest no change in organization, except a little more disconnection from the CGIAR internal and specific stakes and more paper diffusion.

Some feel that more emphasis could be put on training in PPB procedures, including terminology and principles, methods of analyzing data, and building of collaborative (institutions) research projects.

Institutionalization, however, needs special organization (either a process or tool) to define PRIORITY questions and to ATTRACT more breeders and other scientists. It could also help coordinate participatory approaches within the CGIAR or even outside the CGIAR and NARS.

What do you see as being the top three issues on which the Working Group should focus over the next 3 years? Why? What WG activities would best address these issues? What suggestions do you have for acquiring the necessary funding to support them?

SUMMARY: The proposals involve the production of three major categories—knowledge, tools, and methods (including impact indicators)—that are scientifically valid (assessed by pairs). These categories can be applied to crops that are not priority for NARS evaluation of PPB methods *in situ*. Ways of applying can include impact studies (including cost-benefit analyses), institutionalization, and scaling up. Means of applying would comprise supporting projects with explicit large-scale approaches, decentralized organization to stimulate innovation, and links with conventional breeding programs (including other, non-CGIAR, organizations).

What ideas and suggestions do you have about how the PNRM-wg or the PBG operate? What listserv should be facilitated in the future?

SUMMARY: Most members prefer both networks to be maintained separately, although links between them should be increased because “distinction is against the real spirit of participatory research”. Arguments are that the PBG network works better independently, it is already very large and not too specific, and has yet to resolve its problems.

PRGA Program should continue with coordination, although some think it would do a better job if run more independently from the CGIAR.

2.3.4. PPB Small Grants Program

The purpose of the PRGA Small Grants Program is to build capacity for applying PRGA approaches to ongoing research. The funded projects contribute methodological and organizational innovation to the field of PRGA and rigorous evaluations of the impact of applying participatory and equity-enhancing approaches, with special attention to the effects on poor, rural women. Projects analyze the outcomes of these methods, comparing them with those of conventional research methods, and evaluate the effects on the research process itself.

Eligibility for small grants requires partnerships among two or more different types of organizations. The program has helped foster research partnerships among IARCS, NARS, NGOs, universities, and grass-roots organizations in Africa, Asia, and Latin America. Table 2a details several projects funded by the Small Grants Program.

2.3.5. Affiliated projects

Includes support to students, and collaboration with partners.

2.3.5.1. Support to students

Three doctoral theses continue to be funded by the PRGA Program. They are making good progress, with fieldwork near completion and dissertation writing already started. They focus on subjects key to filling gaps within the PPB field: local seed systems, farmers' decision-making in PPB in the context of a systems perspective, and how to break the nexus between poverty and agrobiodiversity.

➤ Mekbib Frew – Ethiopian

Began doctoral studies at the Agricultural University of Norway in February 2000. His research is entitled *Diversity of Seeds, Seeds of Diversity: Food Security through Enhancement of Sorghum*. As stated in the proposal document, the project's main goal is to promote a sustainable use of on-farm sorghum diversity and increase small-scale production for resource-poor farmers in eastern Ethiopia. This region is a center of origin for the crop, with a unique diversity of farmers' varieties, knowledge, and management systems. Despite more than 40 years of formal and scientific breeding, adoption of modern varieties is very low. The project explores the hypotheses that (1) a discrepancy lies between modern varieties and those preferred by farmers (who are mostly women), and (2) local materials can be improved without sacrificing diversity or resulting in loss of adaptation. To understand farmers' decision-making processes, the project must adopt a participatory, gender-sensitive, approach, which is likely to be more fruitful than the traditional top-down approach.

To improve the region's food security by enhancing biodiversity conservation and use, baseline information is needed on farmers' knowledge and technology, and on the extent of on-farm genetic diversity and loss. The project seeks to address issues through on-farm studies of genetic diversity management, assessment of farmers' breeding methods and seed systems, and quantification of farmers' success in variety development. Research methodology will include multisite experiments under farm and research station conditions. Findings are expected to lead to the development of a breeding strategy in which farmers and the formal sector can interact effectively and local diversity is conserved.

➤ Antonio José López – Colombian

Pursuing doctoral studies at the University of Wales. His dissertation *Farmers' Knowledge and Formal Models of Their Decision Making in Participatory Improvement of Cassava-Maize Intercropping* aims to develop methods for incorporating both local knowledge and formal models of how farmers make decisions into participatory technology development. The fieldwork for the doctorate is being conducted in Colombia's Caribe Region

López reports the following highlights so far:

For production system characterization: three production systems and five types of farmers were identified in the Caribe Region, as according to key agrobiophysical variables, farm area, land tenure, and land tenure stability.

For farmers' knowledge and modeling: farmers have a sophisticated decision-making model for integrating market information, family necessity, and food security. They appear especially concerned over weed control, the amount of area to which cassava is planted, and specific harvesting procedures. In general, no strong differences by gender were noted in reference to these key concerns. However, in terms of detailed knowledge, gender and production system differences are obvious in relation to knowledge domains. For example, farmers from production system 5 clearly classify soil according to color and structure, whereas, in production systems 2 and 3, farmers identify two types of soil based only on texture. Likewise, men farmers in production system 5 had a sophisticated understanding of the relationships between maize and weed residues, mulch, soil erosion, soil fertility, and soil moisture. In contrast, women consider cassava leaf color intensity, cassava-maize attractiveness, and increases in cassava root diameter when maize residues are removed after harvest.

➤ **Kirit K. Patel – Indian**

Pursuing PhD studies at the Society for Research and Initiatives for Sustainable Technologies and Institutions (SRISTI). Kirit's project is on *Breaking the Nexus Between Poverty and Agrobiodiversity: Institutional and Policy Changes for Supporting Farmer-Led Participatory Crop Improvement and Conservation*.

In the context of the growing success of participatory approaches, the project aims to understand the extent to which various successful PPB projects have achieved the conflicting goals of crop improvement and on-farm conservation of agrobiodiversity. It examines the various instruments of incentives and benefit sharing that successful PPB projects use to encourage participating farmers and communities. The project will also analyze current policy environments to identify constraints affecting the operationalization of various incentives and benefit sharing for farmers to continue on-farm conservation and improvement of a diverse genepool. Some PPB projects reported in the literature from western India and Nepal were tentatively considered for possible fieldwork and data collection. This brief report explains how the project evolved, given situations in the field, and discusses the updates on research approaches and activities being used.

2.3.5.2. Collaboration with partners

A publication, *Quantitative Analysis of Data from Participatory Methods in Plant Breeding*, was produced. The papers in this volume were presented at a workshop of the same title and held at the Castle of Rauischholzhausen Conference Center of the Justus Liebig University, Germany, during 23-25 August 2001. Participants were CGIAR scientists who wanted to review and discuss the different quantitative techniques used for analyzing data generated by participatory methodologies in the context of plant breeding.

Participatory plant breeding (PPB) is gaining wider acceptance worldwide—it is increasingly being used within the CGIAR—and its merits and limitations are beginning to be better understood. Many scientists involved in these efforts, however, have realized that the quantitative techniques needed to analyze the data from the

participatory methodologies used in PPB are still not well known or understood by many practitioners. Further discussion and exchange of methods and ideas are needed.

The workshop was organized by CIMMYT and the Justus Liebig University, and sponsored by CIMMYT, IRRI, the PRGA Program, and other participating CGIAR centers. Experts from outside the CGIAR were also involved.

Scientists from different disciplines (breeders, social scientists, biometricians, and agronomists) and crop backgrounds (maize, rice, potato, cassava, sorghum, barley, and agroforestry) were brought together for the workshop. All 21 participants were experienced in PPB and had also worked on interdisciplinary teams. They represented 10 CGIAR centers (CIAT, CIMMYT, CIP, ICARDA, ICRAF, ICRISAT, IITA, IPGRI, IRRI, and WARDA), Justus Liebig University, University of Wales, and Michigan State University.

The workshop was organized around three themes:

Designing and analyzing joint experiments involving variety evaluation by farmers.

Identifying and analyzing farmers' evaluations of crop characteristics and varieties.

Dealing with social heterogeneity and other research issues.

The PRGA Program agreed to provide CIMMYT with a grant of US\$1500 to be budgeted toward the printing costs of this publication.

2.4. Research Monographs, Nos. 1 to 4

2.4.1. PPB monograph, no. 1

Title: Technical and Institutional Issues in Participatory Plant Breeding: From the Perspective of Formal Plant Breeding
A Global Analysis of Issues, Results, and Current Experience

Authors: Eva Weltzien, Margaret E. Smith, Laura S. Meitzner, and Louise Sperling

Summary: This publication reviews what has been done in PPB from the perspective of formal sector institutions such as national plant breeding programs, CGIAR institutes, or extension services. It includes an inventory of PPB cases worldwide, detailed description of about a dozen illustrative cases, analyses of key technical and institutional issues, and assessment of gaps in current knowledge on PPB methods, organization, and results. The document defines PPB as comprising approaches that involve close farmer-researcher collaboration to bring about plant genetic improvement within a species. It describes goals of PPB programs, the reasons for involving farmers and other end users in PPB, and the areas in which PPB is expected to be beneficial.

PPB programs were grouped in various ways to detect and conceptualize trends. These groupings emphasized the key factors that have stimulated development practitioners' interest in PPB: the goals that PPB can achieve, the environments in which it might have impact, and the nature and degree of farmers' participation in different projects.

Most programs focused on productivity enhancement, particularly in marginal environments. Another important goal was to ensure the possibility of releasing varieties adapted to specific (often marginal) production conditions through policy

changes. Other goals, such as biodiversity enhancement and farmer capacity building, were secondary in most PPB programs.

Formally led PPB programs tend to cluster in production environments of high stress (marginal) and subsistence. Surprisingly, however, an increasing number of projects are addressing less stressed, more market-driven contexts.

Farmers' participation in formally led PPB can be considered in terms of the stages of the breeding process during which it occurs, the nature of farmers' contributions, and the degree of decision making. These three dimensions together describe the "quality of participation".

In terms of "stage", in most of the PPB cases examined, farmer participation occurred during the testing of (genetically fixed) varieties. The involvement of farmers in setting breeding priorities and targets is also reasonably common. Much less has been done to explore farmers' potential contributions to setting the overall goals of a breeding program, generating variability, or selecting experimental varieties from among segregating populations. Participation between researchers and farmers in the variety diffusion process is beginning to receive more attention.

The nature of contributions that farmers had made included providing key information from their knowledge and experience, and genetic materials, and being involved in the actual breeding process. The farmers' contributions provide breeders with insights needed to identify appropriate varieties and improve seed production and distribution systems. The degree of participation within formally led PPB was overwhelmingly consultative, that is, farmers gave advice, but had no real decision-making power.

For this review, 48 cases were identified, studied, and inventoried. Of these, 11 case studies were presented in greater depth in the body of the report, having been chosen to represent the diversity of crop types, geographic regions, and scales of PPB programs, and to show some of the different motivations the formal breeding sector had for pursuing PPB.

The case studies showed work in progress with farmers involved in different stages of the breeding process. Crops were of the cross-pollinated, self-pollinated, and clonally propagated types. The research was located in Asia, Africa, Latin America, and Mesoamerica, and addressed farmers' needs in a wide variety of agroecological conditions from extremely hot, dry, desert margins to very high rainfall, high altitude, rugged conditions. Some cases deal with highly market-oriented production and others with subsistence-oriented systems where production shortfalls are frequent. Most of the case studies represented production systems in which the formal breeding sector alone, without the farmers' direct involvement, had only limited success.

Case studies involving different institutional partners and collaborative arrangements are also represented. The cases emphasized different broad goals, with some addressing issues that farmers identified and initiated, while others merely consulted farmers and used the information to orient selection programs or other breeding activities.

The book uses the information from the case studies to describe key outcomes: lessons learned from themes on biophysical and socioeconomic environments, breeding strategies involving farmers, issues of participation, gender/user differentiation, institutions in formally led PPB, and transfer of benefits. The review concludes by focusing on identifying gaps in our understanding that must be addressed by future PPB research.

2.4.2. PPB monograph, no. 2

Title: Technical and Institutional Issues in Participatory Plant Breeding: From the Perspective of Farmer Plant Breeding

A Global Analysis of Issues, Results, and Current Experience

Authors: Shawn McGuire, Gigi Manicad, and Louise Sperling

Summary: Farmer-led PPB excites great interest for its promise in crop improvement, biodiversity conservation, and farmer empowerment. Although its potential is most anticipated for unfavorable areas beyond the reach of formal breeding, PPB could have significant impact across a wide range of contexts.

This report considers research that sought to support farmers' own systems of crop development and seed exchange (farmer-led PPB) in light of these different goals, and from the perspectives of the range of organizations promoting PPB. It presents an overview of farmer-led breeding and a framework for support, giving the first major comparative analysis of farmer-led PPB.

This document broadly defines farmer-led breeding to include both deliberate actions and those bound in farmers' practice, to consider collective as well as individual processes, and to include systems of seed storage and exchange. A review of current knowledge about farmer-led breeding points to areas of similarity and difference from formal breeding. Farmers often bring a wider set of criteria to crop development than does formal breeding. They also seek to balance maintenance with crop improvement, and local with broad adaptation, although details are sparse on the nature and success of such balances.

Farmer-led breeding can be considered as a series of processes for managing gene flow, in parallel with formal breeding, which influences crop genetic structure and performance, and determines who receives germplasm and information. These processes include introduction of new diversity (and its testing), recombination, selection, storage, and exchange of planting material. Knowledge remains patchy on the biological and social impact of these processes. Farmers' actual interest in breeding may be supported by a range of socioeconomic factors (failure of formal breeding, importance of crop, absence of policy barriers), as well as biological factors (visible diversity, self-pollination, environmental variation, experience with crop). As a social process, farmer-led breeding and seed exchange involve particular groups differently, often giving particular roles to gender or wealth.

The core of this report describes and analyses 11 case studies of projects that pioneer different aspects of farmer-led PPB. They represent activities in Africa, Asia, and North and South America, initiated by institutions ranging from independent farmers' initiatives to the CGIAR, and involve crops from all breeding systems. PPB projects are active, not just in marginal areas, but across a broad spread of agroecologies.

These cases address a range of goals, the most common being conservation and improvement of germplasm. Many of these cases also sought to expand farmers' crop options, although only a few cases made this a central goal, exclusive of interest in conservation. An additional goal in several cases was empowerment through promoting self-reliance. Finally, one case concentrated on helping post-disaster adjustment. In most cases, the degree of overlap between crop conservation and development was

striking. Although goal-setting generally had local input, there was little discussion of this process or of problem diagnosis.

2.4.3. PPB monograph, no. 3

Title: Biotechnology-Assisted Participatory Plant Breeding: Complement or Contradiction?

Authors: A. M. Thro and C. Spillane

Summary: Contemporary plant biotechnologies and farmer PPB have evolved from different disciplines and along different trajectories. The question has emerged as to whether they could complement each other as approaches to improving rural livelihoods in developing countries. The very existence of PPB suggests that farmers' landraces do not contain all that farmers need; and that biotechnology can offer new tools for getting and managing variation.

This book explores international thinking on biotechnology and farmer PPB. The authors' goal was to encourage discussion and inform on:

Whether and how biotechnology can benefit small-scale, resource-poor farmers in developing countries.

Whether farmers can more fully participate, as colleagues or leaders, in shaping and creating benefits.

The potential of specific biotechnologies to strengthen farmer participatory research.

The study included an extensive series of interviews, discussions, and surveys throughout 1999 and 2000, involving at least 500 farmers, participatory researchers, plant breeders, and biotechnologists in developing and developed countries. The authors conclude that:

Real potential exists for synergy between plant biotechnology and participatory research to assist resource-poor, small-scale farmers.

Farmer participation could strengthen biotechnology research with "reality checks" to sharpen its focus.

The opportunities are unrealized. Only a handful of biotechnology-assisted participatory projects exist. Most of these use tissue culture, an inexpensive biotechnology that can provide benefits quickly.

Success in applying biotechnology-assisted PPB will depend on:

Communications, that is, on mechanisms for sustained communication between biotechnologists, plant breeders, participatory research practitioners, farmers, and the public.

Investment. Public investment requires public support in donor and developing countries. But little interaction exists with the public about the agricultural research needs of developing countries.

Short-term benefits for farmers to compensate farmers for the risks and costs of experimentation, and address their most pressing needs, without sacrificing opportunities for long-term benefits.

An explicit social vision that is clearly articulated and shared among project partners; and, a shared understanding of what a given project would mean for that vision.

Effective “problem transfer”, for example, a problem is “transferred” when researchers identify the farmers’ needs as their own.

Access to enabling technologies by developing, via negotiation with proprietary sources, a public biotechnology toolbox or strategic alliances with key public research institutions.

Effective and efficient regulatory systems that are designed to ensure responsible use of transgenic biotechnology. They also create costs, often exceeding research costs, which directly affect what technologies are developed for and with resource-poor farmers.

Initiative and continuity. A rare blend of realism, idealism, and stability will be required. Highly heterogeneous partnerships must be formed and kept focused and motivated.

Because of its capacity for multidisciplinary research, its focus on poverty eradication, and its experience in animating and sustaining long-term partnerships, the CGIAR is in a unique position to integrate biotechnology and farmer participatory research.

2.4.4. PPB monograph, no. 4

Title: Participatory Plant Breeding and Gender Analysis

Authors: Cathy Rozel Farnworth and Janice Jiggins

Summary: Empirical enquiry and experience has shown that technology is not necessarily gender neutral; neither are knowledge and information. We know that women’s roles in seed handling, agricultural production, food processing, trading, and purchase are vital to food security and family well-being, and that these roles and the knowledge on which they are based can be substantially and importantly different to that of men’s. Yet, even as women acutely need income-generating, labor-saving, and productivity-increasing technologies to enable them to fulfill their roles more easily, gender issues still remain to be fully incorporated into technology development. The continuing failure of much technology R&D to recognize women’s actual and potential contribution to technology development and use is not only detrimental to the economic security and social status of women and their families, but also, indeed, to the success of R&D in meeting national and regional objectives.

This book has therefore been commissioned by the PRGA Program to address these gaps with respect to plant breeding. The document aims to:

Provide an analysis of the methods and approaches currently used within PPB with respect to gender issues, the use of GA, and user involvement.

Draw out the implications of researchers’ experience with GA and user involvement.

Analyze and discuss the outputs currently being generated by PPB from a user perspective.

Identify what more can be done, and how, to achieve broader impact and capitalize on what has so far been achieved.

Monograph's layout: The authors chose case studies from around the world to help highlight particular points, provide inspiration, and show how lessons can be drawn from practice.

Rather than summarize the findings of each chapter, the authors chose to conclude, where appropriate, particular chapters with a section entitled *Gaps and Opportunities*, which attempts to draw out the lessons of the material presented and discussed. The final chapter brings together the lessons learned in the preceding chapters, to provide pointers for the future.

Chapter 2--User Differentiation: *Discusses the strengths and limitations of gender analysis in differentiating and understanding users. It argues for gender-sensitive differentiation along the food chain. The effectiveness of gender-sensitive methods, alone and in combination with other tools, is examined, as is the question of who might carry out gender analysis in a PPB situation.*

Chapter 3--Diagnostic Tools: *Emphasizes the importance of not subsuming particular user interests within broad-brush analytical categories like "household". Presents methods for diagnosing the interests of particular user categories, including stakeholder analysis and SWOT. Because such methods have poor predictive capacity, approaches to help predict future decision-making patterns and to deal with situations of rapid change are also presented.*

Chapter 4--User Involvement in R&D: *Highlights how women can be located and involved in PPB. Presents ways, through institutional development, of opening up spaces for user involvement in, for example, the plant breeding cycle (crossing, screening and testing, and evaluation). Then follows a section on approaches to capacity building to strengthen user involvement.*

Chapter 5--User Involvement in Dissemination and Communication: *Argues that the manifold spaces opened up by worldwide devolvement of service provision to local government and nonpublic actors have created opportunities to involve multiple actors and institute co-learning. The ways in which seed is being multiplied and disseminated is examined, as is the diffusion of experimental capacity and breeding capacity among users. The issue of quality maintenance during scaling up is addressed.*

Chapter 6--Evidence for, and Assessment of, Gender-Differentiated Impacts: Argues that the literature on impact studies in PPB is inadequate for providing a gendered understanding. It assesses the contributions that some conventional impact studies have made, and examines the role of PPB in innovation. User participation in the provision of impact data is discussed, and the impact of PPB processes on social dynamics examined.

Chapter 7--Forward-Looking Summary: *The conclusions that may be drawn from each chapter are elaborated here. Further steps for action are presented.*

Table 2a. Projects on participatory research and gender analysis that have been funded by the Small Grants Program, together with the due dates of the first and last sets of technical reports.

Project title	Recipient	Duration in years (date to date)	Dates (first reports)	Total amount of grant	Dates (last reports)
Farmer-Led Participatory Maize Breeding in Middle Hills of Nepal (second phase)	LI-BIRD	2 years (1 July 2001-30 June 2002)	28/2/02	\$30,000 (\$15,000 authorized on 10/9/01 on signing of LOA)	30/9/02
Village-Based Participatory Breeding in the Mountain Slopes of Yemen (second phase)	ICARDA	2 years (1 July 2001-30 June 2002)	28/2/02	\$30,000 (\$15,000 authorized on 10/9/01 on signing of LOA)	30/9/02
Metodologías Participativas para el Mejoramiento Genético del Frijol Común [<i>Participatory Methodologies for the Genetic Improvement of Common Bean</i>]	IPCA	4 years (March 1999-April 2003)	11/6/02	\$8000 (\$4000 authorized on 20/11/02 on signing of LOA)	11/12/02
Participatory Development of Farmer-Managed <i>in vitro</i> Propagation and Biodiversity Conservation of Cassava (second phase)	FIDAR	1 year (1 Jan 2002-31 Dec 2002)	30/6/02	\$33,000 (\$20,000 authorized on 14/12/01 on signing of LOA)	31/12/02
Study on participatory plant breeding/biotechnology of sorghum through assessment of farmers' variety development, selection methods, seed systems and management, genetic diversity, and conservation	Agricultural University of Norway	2 years	15 Aug 2000; 15 March 2001	\$39,699 (\$10,000 advanced on signing of LOA; \$7,732 authorized, following proposal approval by PRGA Program; \$11,726 authorized on 18/4/02, corresponding to funds that should have been disbursed in 2001)	15 Aug 2001; 15 March 2002 Final reports: 15 Aug 2002; 15 March 2003
The Cassava Biotechnology Network in Latin America: Strategies for Integrating Small-Scale End Users in Research Agenda Setting, Testing, and Evaluation	CBN	3 years (1 Jan 2000-31 Dec 2003)	30 June 2002	\$70,000 (US\$35,000 on 1 Nov 2000)	
Integrated Nutrient Management for Building the Assets of Poor Rural	IPRA	2 years (1 Jan 2002-28 Feb 2004)	31 Aug 2002	\$250,000 (grant paid in full after signing of LOA)	28 Feb 2003; 31 Aug 2003

Women					Final: 28 Feb 2004
Proyecto de Mejoramiento Participativo de Papa en Bolivia [Project on Participatory Improvement of Potato in Bolivia] (second phase)	Fundación PROINPA	1 year (March 2001-July 2002)	12/5/02	\$30,000 (\$15,000 authorized on 20/11/01 on signing of LOA)	12/11/02
Metodologías Participativas para el Mejoramiento Genético del Frijol Común (second phase)	EAP-Zamorano	1 year (1 July 2001-30 June 2002)	22/5/02	\$22,000 (\$10,000 authorized on 27/11/01 on signing of LOA)	22/11/02
Farmers' Practice of Domestication and Their Contribution to the Improvement of Yam in West Africa	IPGRI	3 years (1999-2002)	31/8/99 29/2/00	\$70,000 (\$35,000 authorized on 23/3/99 on signing of LOA)	31/8/00 28/2/01 13/8/02
Developing a Participatory Research Model with a Systems Approach for Improving Technologies and Their Adoption for the Cassava-Maize Intercropping Production System Used in the Colombian Caribe Region	CORPOICA	3 years (1 May 1999-30 April 2002)	31 Oct 1999; 30 April 2000; 31 Oct 2000; 30 April 2001; 31 Oct 2001	\$78,000 (\$26,000 disbursed on signing of LOA on or shortly after 20 April 1999)	30 April 2002

Section 3: Participatory Natural Resource Management Working Group (PNRM-wg)

3.1. Work Plan, Activities, and Progress

In 2003, the PNRM Working Group's work plan was focused on consolidating outputs from activities conducted in previous years, specifically:

Completing the book *Managing Natural Resources for Sustainable Livelihoods: Uniting Science and Participation*

Consolidating the establishment of the PNRM Resource Center by expanding the collection of PNRM methods, tools, and resources developed by Group members

Developing a synthesis document on *Farmer Participatory Research for Integrated Pest Management*

In addition, the PNRM-wg played a role in influencing the agenda of the CGIAR Challenge Program on Water and Food. In January 2003, the Group nominated colleagues to serve on the independent panel responsible for selecting concept notes to advance to the proposal-writing stage. Elske van de Fliert (FAO Regional Vegetable IPM Programme in South and Southeast Asia) and Will Allen (Collaborative Learning for Environmental Management, Manaaki Whenua - Landcare Research NZ Ltd) served on the panel.

3.2. Specific Outputs 2002-2003

3.2.1. PNRM book

The book mentioned above, *Managing Natural Resources for Sustainable Livelihoods: Uniting Science and Participation*⁷, was submitted to Earthscan and IDRC in July 2002 for publishing. Following an external review in September 2002, and further refinement and editing, the book was finally published in August 2003. See Appendix 8 for a summary of the book.

The book is an important product of a workshop co-sponsored by the PRGA Program and the Natural Resources Institute (NRI, UK). It was held at the NRI in Chatham, England, in September 1999. The workshop explored a diversity of experiences in the management of common property and protected areas, natural resource management at the landscape and watershed levels, soil and water management, and land care and rehabilitation. Emphasis was given to the following key questions:

What innovative approaches are being developed for collective participation and decision making in research on NRM problems and processes?

What new linkages have been established between farmer-led research initiatives and formally led ones?

What methods are proving most useful for participatory research with gender and stakeholder analysis and for improving the involvement of specific groups of actors in planning, monitoring, and evaluating NRM research?

The book will be promoted at a workshop to be held during the Millennium Ecosystem Assessment meeting in Alexandria, Egypt, in March 2004.

3.2.2. PNRM Resource Center

In 2000, at the PRGA Program's 3rd International Seminar, the PNRM-wg set the following objectives for a PNRM Resource Center:

To contribute to networking, mainstreaming, and institutionalization of PNRM by acting as an information clearing house and resource center

To develop and adapt methodology collaboratively for those gaps identified through an inventory. The inventory may be organized as a toolbox, with examples of how different methodologies fit particular cases. A possible focus for the toolbox comprises institutional innovations and methods to improve priority setting, methods to increase the speed of technology evaluation, and methods to enable scaling up of technology

An initial inventory of tools, methods, and learning resources developed by PNRM-wg members was taken during 2001 and made available online in 2002 in the PNRM area of the PRGA Program's Web site at

<http://www.prgaprogram.org/pnrm/resources/pnrm_tools.htm>

PNRM resources are organized by author, topic, and type. Topics include:

- Collaborative Adaptive Management
- Collaborative Planning and Management
- Environmental Monitoring
- Integrated Crop Management
- Integrated Pest Management
- Integrated Soil Fertility Management
- Participatory Action Research
- Participatory Learning and Change
- Participatory Monitoring and Evaluation
- Participatory Research Methods
- Policy Development
- Quality of Science
- Social Capital
- Sustainable Development and Environment
- Sustainability Indicators

Types include case studies, decision-support tools, guides and handbooks, and quantitative methods.

During 2003, the collection doubled to more than 80 items. When the PRGA Program's new Web site is launched in late 2003, further value will be added to the collection by making it searchable and extending the classification system. The resources will be classified again by author, topic, and type, and also by purpose and stage of innovation.

3.2.3. Concept paper on PRGA for the CGIAR Challenge Program on Water and Food

Several PNRM-wg members collaborated on an overview of participatory research and learning (PR/L) processes and their relevance to watershed management and development. This synthesis draws heavily on the Group's book, *Managing Natural Resources for Sustainable Livelihoods: Uniting Science and Participation* (copublished by Earthscan and IDRC in August 2003), and on other key resources. The synthesis will be used as a guide by researchers for formulating proposals and by reviewers for selecting them.

It is available online at <http://gisweb.ciat.cgiar.org/wcp/download/cpwf_pr.pdf>

3.2.4. Synthesis document on farmer PR for integrated pest management

In 2001, the PRGA co-funded a study tour and learning workshop on *Farmer Participatory Research for Integrated Pest Management* (FPR-IPM), together with the CGIAR Systemwide Program on IPM, the Global IPM Facility, CAB International, and SDC. Six innovative integrated pest management projects from Asia, Latin America, and Africa participated in mentored, reciprocal, study-tour exchanges. Each exchange involved a pair of projects from different geographical regions and employed significantly different methodologies. A learning workshop, involving the study tour participants, their mentors, resource persons, and an array of other IPM projects, was held at the conclusion of the study tours to share and synthesize lessons learned and disseminate them to a wider IPM audience. The resources developed through the study tours and learning workshop were published in a 2-CD set available at <<http://www.prgaprogram.org/natural.htm#fpr-ipm>>

A small working group is developing a synthesis document, drawing on the study-tour case studies and the collective analyses developed at the workshop. The document is addressed to:

- IPM and/or ICM researchers who would like to understand the essential principles of participatory research and how they can be used to strengthen and complement conventional research

- Development practitioners looking for an up-to-date synthesis of key issues to consider when planning and engaging in participatory research and learning (PR/L) for improving integrated crop and pest management

- Program managers who desire a richer understanding of the potential of PR/L in identifying and exploiting practical opportunities for improved livelihoods

- Policy makers and donor representatives who need support for decisions on investments in research and learning initiatives

The outline of the document is given in Box 3A. A draft of the document will be circulated to project stakeholders at the end of 2003, and publication is expected by March 2004.

Box 3A

Issues discussed in the synthesis document on *Participatory Research and Learning in Integrated Pest Management*

1. Introduction

Are participatory research and participatory learning two sides of the same coin?

Why another publication on PR/L?

The context: participatory research and learning for integrated pest management

2. Navigating the landscape of participatory methodologies

What are the differences between conventional and participatory approaches to agricultural innovation?

How do conventional and participatory approaches complement each other?

How does participatory research differ from participatory learning?

How do research and learning approaches complement each other?

How can experiments be used in learning and research?

How does participatory research use experimentation differently to participatory learning?

Who participates in whose research and learning?

3. What difference does PR/L make to IPM?

4. Managing PR/L processes

Which should come first, research or learning?

Why is doing the groundwork so important?

What aspects merit attention and why?

Who's coming to innovate?

How can gender and other diversity concerns be integrated in the process?

How should we monitor and evaluate PR/L processes?

5. Applications of PR/L in IPM

6. Enabling PR/L in IPM

7. Financing PR/L in IPM

Why should governments and donors invest in PR/L?

How can the financing of PR/L be put on a sustainable basis?

How can the effective use of funds for PR/L be fostered?

Should farmers be paid for taking part in PR/L activities?

8. Facilitation and mentoring

9. Organizational forms

10. Quality of participation

How can quality be ensured in participatory research?

Do participatory approaches necessarily lead to local empowerment?

11. Conclusions

3.3. Coordinating the PNRM Working Group

The PNRM-wg is open to all practitioners and developers of participatory research approaches for natural resource management. The group interacts through an e-mail discussion list, meetings, seminars, and via small, self-organizing subgroups formed to undertake specific projects.

Since 1999, the Group has grown from an inaugural group of 25 members to 150 from 37 countries, and has the following institutional profile:

NARES	12
CGIAR	62
Other IARCs	3
NGOs	18
Consultants	12
Universities	29
Students	5
Donors	4
FAO	5
Total	150

3.4. NRM Small Grants

University of Hohenheim

Project title: Assessing Approaches to Innovation Development in NRM through Participatory Monitoring and Evaluation

Collaborating institutions: Univ. Hohenheim (reporter: Kirsten Probst), CIAT-Hillside, AFOCO, IPCA, GTZ-Forestry Program, DED (German Development Service)

IPRA-SWNM

Project title: Integrated Nutrient Management for Building the Assets of Poor Rural Women

Collaborating institution: IPRA (CIAT's Participatory Research in Agriculture Project)

University of Essex

Project title: Social and Human Capital for Improving Agricultural Productivity and Natural Resource Management

Collaborating institution: Univ. Essex

SRISTI

Project title: Breaking the Nexus Between Poverty and Agrobiodiversity: Institutional and Policy Changes for Supporting Farmer-Led Participatory Crop Improvement and Conservation

Collaborating institutions: Univ. Guelph (Sally Humphries), SRISTI (Anil Gupta, President), LI-BIRD, IIM-A

Section 4. Mainstreaming

Overview

The PRGA Program's general objective of mainstreaming includes several discrete but interrelated activities:

Capacity development for gender-sensitive participatory research, complemented with organizational development for institutionalization

Demonstrating concrete evidence of impact for institutional learning and change

Supporting networks of development practitioners

Developing learning cases

More active seeking to develop a high-level support function from stakeholders, particularly donors and influential members, who will provide intellectual direction and advocate for the Program's objectives both within and outside the CGIAR

As planned, the Program has focused primarily on reaching the core scientists of the CGIAR, NARS, and other institutions who may have concerns about the rigor and concrete impact of participatory approaches. This emphasis was adopted on advice from the ICER and a TAC Breeding Review Panel, who felt that, given the substantial progress made in advancing participatory plant breeding (PPB) approaches and methods, it was time to advance change among the "mainstream" breeding community. Three separate "institutionalization" activities were therefore funded: a PPB workshop on the "Quality of Science"; a set of in-depth PPB impact studies (year 1); and a series of PRGA Program working papers on the "Quality of Science" (year 2).

Institutional Assessments

The CGIAR centers themselves need to reflect, synthesize, and develop well-rooted strategies for PRGA work. CIP's recent ICER on participatory research showed that this sort of reflection is fundamental for institutionalizing the approach. Strong center-based conviction and key change agents for PRGA approaches are essential for strong systemwide commitment.

Intra-Center Change Committees were established to foster organizational strategies for PRGA work.

Events to help form and/or reinforce such Committees were planned under the PRGA Program's umbrella at CIP, CIAT, and ICARDA. The following prerequisites were collaboratively identified for forming such Intra-Center Change Committees:

Pre-existing organizational forms and/or functions related to PRGA activities, or the likelihood of such organizational forms coming into existence without the PRGA Program having to lead such formation

Demonstrated commitment and experience in PRGA activities

Commitment and support from management

Willingness and potential for institutional change

Existence of "champions" within the organization. These champions should be sufficiently senior and/or respected for their work in the organization's hierarchy. However, although management support is crucial, change cannot be top-driven

Organizational change is slow, and the process is often confronted with obstacles such as resistance; the need to continuously re-assess and build on the champions' capacity to lead change; and, frequently, the contingencies of the champions' own scientific research affecting their capacity to lead change. Nevertheless, some general guidelines for the functioning of these Intra-Center Change Committees are outlined below:

Conduct institutional analysis to identify opportunities and constraints for institutionalizing PRGA approaches within the organization

Generate horizontal and vertical support for the initiative within the organization through activities such as seminars, workshops, and internal publications

Develop and implement an action plan for institutionalization

Develop skills, particularly for developing and managing processes for organizational change

Critically review, evaluate, and revise action plans according to context and lessons generated

Network and exchange experiences with, and so learn from, other centers and/or partner institutions involved in similar activities

Analyze, write up, and disseminate experiences through, for example, external publications, seminars, and workshops

4.2.1. The International Potato Center (CIP)

Principal contact persons: Oscar Ortiz (CIP); Barun Gurung (PRGA Program)

The Working Group on Participatory Research at CIP was an important catalyst for the establishment of Intra-Center Change Committees. The CIP Working Group received considerable support from leadership, and included members from several projects within the Center. Barun Gurung from the PRGA Program first visited in July 2002 to discuss and develop an action plan for collaboration between the Working Group and the PRGA Program for further institutionalization. Based on discussions with the Research Director and key members of the Working Group, an initial institutional assessment was planned.

An intern, under the supervision and guidance of the Working Group's Coordinator, was contracted to conduct the survey. Considerable time was spent orienting the intern to the organizational assessment framework. The study began in July 2002, and initial results were presented to CIP management and senior staff. Recently, a first draft was circulated among all Working Group members, and is expected to be finalized in October 2003.

The report and action plan for the future institutionalization of PRGA approaches at CIP will be submitted to the PRGA Program in November 2003.

4.2.2. The International Center for Tropical Agriculture (CIAT)

Principal contact persons: Barun Gurung (PRGA Program); Mathew Blair (Beans Project, CIAT)

Barun Gurung conducted the CIAT case study, assisted by an intern (Harriet Menter). The study's initial phase was conducted between July and October 2002, and a first draft completed by November 2002. The major lessons were presented to CIAT staff during the November Annual Review in 2002.

The action plan that emerged was based on the identification of two major groups through which PRGA approaches are expected to be institutionalized in CIAT: the Gender and Diversity (G&D) Committee for CIAT, and the Germplasm Group. The G&D Committee was established in 2003 and is currently conducting its own study on CIAT's organizational culture. When the study is completed in October 2003, the PRGA Program and the G&D Committee will jointly develop a plan of action for institutionalization.

The Germplasm Group is an informal group of breeders from several CIAT projects. It is facilitated by a bean breeder (Mathew Blair), who is also the PRGA Center Liaison for CIAT. The Group, with support from the PRGA Program, has initiated a process to systematize the involvement of the client in technology development within CIAT's various germplasm projects. An initial activity is under way to promote, across all of CIAT's germplasm projects, the existing "practices" already used by breeders to engage end users. When the survey is completed, a discussion workshop, which the PRGA Program will facilitate, will be held in November 2003 to generate a plan of action for systematizing the process of end-user engagement in technology development. The plan of action will include a selection of "best practices", and an assessment of the organizational implications (i.e., structural) for their integration into research practice.

4.2.3. The International Center for Agricultural Research in the Dry Areas (ICARDA)

Principal contact persons: Aden Aw-Hassan (agricultural economist, ICARDA); Barun Gurung (PRGA Program)

Collaboration between the PRGA Program and ICARDA has been extensive, through both the Small Grants Program in PPB and Aden Aw-Hassan's membership of the PRGA Program's Advisory Board. Several collaborative studies between the PRGA Program and ICARDA have been conducted for several years, particularly in PPB. The reports and impact studies conducted by the Program have served as important milestones in providing evidence of the efficacy of participatory approaches in agricultural research.

Based on this existing collaborative experience, Barun Gurung and Aden Aw-Hassan held extensive discussions on how to proceed toward developing an action plan for institutionalization in ICARDA. An institutional assessment was commissioned in late October 2002 and a final draft has been completed and submitted to the PRGA Program for review. Once this review is completed, the final draft will be submitted in November 2003.

The action plan for establishing the Intra-Center Change Committee at ICARDA is being developed and will be presented with the final report in November, at which time, Barun Gurung will visit ICARDA for further discussions.

Forum for Agricultural Research in Africa (FARA)

With incomes and food security in sub-Saharan Africa worsening and natural resources deteriorating at alarming rates, there is urgent need for research to engage more effectively with the rural poor, particularly smallholder farmers, women, and target groups from highly vulnerable areas suffering adverse effects of HIV/AIDS and climate change. However, much of the effectiveness of research and development (R&D) systems in addressing the needs and demands of their constituency groups, particularly of smallholders and women, is critically constrained by organizational considerations. R&D systems predicated on a "supply driven" agenda of innovation cannot effectively respond to the smallholders' complex social and environmental realities.

An additional constraining factor in addressing the needs of smallholders and women is the limited capacity for using gender-sensitive participatory approaches, particularly of the CGIAR centers. Findings of the PRGA Program demonstrate that end users such as women are brought into the research process at very late stages, usually to evaluate technologies that have already been developed and are ready for dissemination. Consequently, such technologies are often inappropriate for the needs of the poor and women (Annual Report of the PRGA Program, submitted to BMZ 2003).⁴

The PRGA Program and FARA propose to strengthen, consolidate, and mainstream gender analysis and participatory research in a high priority, highly visible program. This program would recognize and promote gender equity and gender-sensitive participatory approaches as an important strategic process in making R&D organizations demand driven⁵. One avenue for doing so is through developing enhanced capacity for gender-sensitive participatory approaches, combined with enhanced capacity for organizational innovations that will sustain the use of such approaches beyond the project's life through their institutionalization within the procedures, structures, and cultures of the participating organizations.

The PRGA Program and FARA will work closely with the three subregional organizations (SROs)⁶ in Africa to improve the performance of agricultural research for development,

⁴. One key lesson learned in participatory research is that involving stakeholders early in research leads to better targeting, greater sense of ownership, and higher impact. Only by recognizing current incentive structures and feeding into existing learning processes can impact assessment contribute to better decision making and ever-increasing impact. Assessing the extent to which R&D organizations have been able to learn and change because of their experience is an important element in mainstreaming PRGA approaches.

⁵. "Mainstreaming" is an umbrella concept that includes five separate but interrelated components: (a) capacity development for PRGA and organizational development; (b) development of a cadre of change agents trained in PRGA and organization-development skills; (c) a network of support and exchange between change agents; (d) adaptation of organizational structures and/or practices to initiate demand-driven agenda; and (e) formation of a high-level group that represents farmers' interests, particularly those of smallholders and women, and functions as a body that ensures accountability for instituting demand-driven agenda in participating organizations.

⁶. These are the Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA); the Conseil Ouest et Centre Africain pour la Recherche et le Développement Agricoles/West and Central African Council for Agricultural Research and Development (CORAF/WECARD); and the Southern African Centre for Co-operation in Agricultural and Natural Resources Research and Training (SACCAR).

particularly of highly vulnerable target groups and areas suffering adverse effects of HIV/AIDS and climate change.

A workshop will be held to design a challenge program (CP) for sub-Saharan Africa (SSA). The SSA-CP would be owned by stakeholders, and would build and add value to previous efforts.

See Appendix 9 for an example of a workshop evaluation.

4.3. Goals and Objectives of the SSA-CP Workshop

The specific objectives of the workshop to design the Sub-Saharan Africa Challenge Program are:

To clarify the expected outcomes and objectives of the SSA-CP

To analyze the current constraints of the "INRM system" in agricultural R&D to make it more effective and efficient, and identify emerging opportunities

To identify the SSA-CP's "niche", thus adding value to SROs, NARS, and partners

Building on existing experience, to elaborate on the research program, structure, and priorities; and identify links between program structure and implementation

To clarify the nature of the institutional arrangements needed to operationalize the SSA-CP

Most significantly, to share ideas, "new science", and new approaches, and to enhance partnerships

4.4. LI-BIRD

A Nepal-based NGO, Local Initiatives for Biodiversity, Research, and Development (LI-BIRD), has been conducting farmer participatory maize breeding in Gulmi District in Western Hills, Nepal, since 1999. As well as focusing on developing a new farmer-preferred maize variety, the NGO had a specific emphasis on strengthening farmers' breeding and the informal seed selection and maintenance process.

The PRGA Program and LI-BIRD began their collaborative impact study with a planning workshop in October 2002. The study's specific objective was to assess those changes in farmers' skills and economic benefits that may result from increased knowledge. Excellent baseline data exist on the participating farmers, and the same 100 farmers in two sites were surveyed to assess changes in human capital resulting from project impact. Although this study was delayed by Maoist insurgency in the Gulmi area, data collection was completed by July 2003, and data are currently being analyzed.

The results of this study will be discussed at the learning workshop to be held during LI-BIRD's annual planning meeting in February 2004. The workshop will involve a facilitated discussion and feedback on the impact study's results, linking field activity and organizational adaptability. The expected outcome of the learning workshop will be an action plan for organizational effectiveness.

Section 5: Gender

5.1. Overview

The establishment of the Gender Analysis Working Group (GA-wg) was a major development that emerged from the recently concluded stakeholder meeting held in Cali, Colombia, during 30 June-1 July. The PRGA Program stakeholders generally agreed that a GA working group had to be established to “reverse the extreme dilution” of gender and gender analysis within both the practice of participatory research and the CGIAR system in general.

Several participants from the meeting joined to form a working group and emphasized the following themes as important to research and development:

- An explicit gender perspective in all policies and programs

- Gender equality as a development goal in its own right

- Gender equality as a cross-cutting theme; key to achieving other development goals

In setting up these objectives, the GA-wg also outlined the first tasks that the PRGA Program needs to accomplish:

- Set up a comprehensive working group on gender analysis (GA)

- Membership to the working group should comprise high-level representation, executives, all CGIAR focal points (those who were interested), and non-CGIAR members

- The PRGA and Gender & Diversity Programs should advocate and lobby the CGIAR system to get a starting function, that is, a gender coordinator, facilitator, or gender specialist

The GA-wg also set out some guidelines for a larger, two-tiered strategy on gender in the CGIAR and the PRGA Program. These are:

CGIAR

- Ensure that explicit gender policy statements are contained in the larger CGIAR policy documents and in those of individual CGIAR centers (e.g., Mid-Term Plans)

- Focus on capacity development for gender analysis methods through training, mentoring schemes for young professionals, and rural women

- Create a “Gender” listserv, building on existing ones such as the PRGAinfo listserv

- Create an inventory of ongoing gender projects and the outputs related to these.

- For example, such a process could build on earlier works such as that of Hillary Feldstein (1997)⁷, as well as on experiences outside the CGIAR

- Establish links with gender archives

⁷. Feldstein H. 1997. PRGA Website

Revive “classical” papers and gray literature (i.e., “unpublished stuff”)

Document “best practices”, case studies, and lessons learned

Identify gaps and initiate new research

Create a Web site

Create virtual conferences on specific themes of emerging issues

PRGA Program

In the Program, the GA-wg would:

Play an advisory role on:

“How to” mainstream gender analysis in PPB and PNRM

Monitoring and evaluating the PBG, PNRM-wg, and other working groups

Develop capacity for GA through training and mentoring

Expand partnerships with other organizations (e.g., research and grassroots) working on gender issues

Defining Gender

“Gender” refers to the roles and responsibilities of men and women, and the relationships between them. Gender does not simply refer to men or women, but to the way their qualities, behavior, and identities are determined through socialization. These roles and responsibilities are culturally specific and can change over time. Gender is seen as the social construction of men and women’s roles in a given culture or location.

Gender roles are distinguished from sex roles, which are biologically determined. Gender refers to the socially determined roles played by men and women. These different roles are influenced by historical, religious, economic, cultural, and ethnic factors. As men and women are defined in the weave of specific social fabrics, the relationships they share constitute what is known as “gender relations”.

Poor targeting, inequitable distribution of benefits and burdens, and poor operational and maintenance structures have hindered development projects from addressing issues of sustainable development in water resources management. Community participation and management approaches have also failed to address these issues, largely because communities are often seen as a collection of people with a common purpose.

The reality is that a community is not a collection of equal people living in a particular geographic region. It is usually made up of individuals and groups who command different levels of power, wealth, influence, and ability to express their needs, concerns, and rights. Communities contain competing interest groups. Where resources are scarce, there is competition for supplies, and those at the lowest end of the power spectrum—this often implies the poor—will go without. Power issues place women in a disadvantaged position. Applying a gender analysis helps development agencies better target their resources and the needs of different gender groups.

People-centered approaches do not always ensure that gender perspectives are taken into account. Thus, a deliberate strategy of gender mainstreaming can be useful to ensure that these issues are part of analyses, project planning, and evaluations.

5.3. The Gender Typology

The tool *Gender Typology* helps researchers analyze how they are using gender analysis (GA) and, likewise, how it affects their research, as well as technology design and adoption. It upholds the premise that those who participate in the different decisions made during research, particularly during technology design, have an important impact, both on the processes and products of research. *Gender Typology* outlines three ways in which GA can be used:

Diagnosis oriented: Differences in gender and stakeholder problems and priorities are diagnosed. They may or may not go on to be considered in priority setting and technology design and evaluation

Design oriented: In addition to being included in diagnoses, gender-differentiated problems and priorities are taken into account in research and development design

Transfer oriented: Different technology dissemination methods are designed to overcome differences in access to an already developed technology that is thought to have similar appeal to women and men

Each way of conducting GA may be implemented in the three different stages of innovation (and 16 steps) outlined in the tool *Participation Typology*.

Related to GA, but also encompassing other stakeholder categories, is the analysis of how projects select participants. This single aspect of participation has proved to have significant effects on the attainment and spread of impact. Many different ways exist to choose participants (or allow them to select among themselves). Often, a project's processes and technology outcomes has a disproportionate impact on those participating—hence, the importance of selecting purposefully.

When a project allows its participants to select among themselves or be selected by their communities, then, usually, the biases and exclusions already existing in the community become reflected in the research. Not surprisingly, the most disadvantaged and women are often excluded. By bringing up this issue and asking projects to spell out and think through their methods for selecting participants, the PRGA Program has helped PR move away from biases found in much of the conventional research.

Establishing the Gender Analysis Working Group

The PRGA Program has begun communicating with representatives of the GA-wg, particularly to develop a strategy statement and to identify potential facilitators for the working group. So far, three nominations have come in and the Program is waiting for additional nominees.

Note:

See Appendix 10 for a list of the GA-wg members

Africa Gender Initiative

The concept paper for the Africa Gender Initiative was presented by CIAT's Rural Innovation Institute in close collaboration with the PRGA Program. Details of the paper are as follows:

5.5.1. The problem

Persistent rural poverty is rooted in the impoverishment of women. Not only are women a growing proportion of the rural poor, but also the welfare of rural children and overall household food security in poor countries is vitally affected by women's access to resources and technology for food production and income generation.

The incidence of poverty among women is growing. Since the 1970s, the percentage of rural women below the poverty line has increased by 50%, whereas that of men increased by 30%. Currently, almost 60% of the world's 1000 million poor are women and, of the 333 million living in absolute poverty, 70% are women.

Recognition of this problem and action to address it is nothing new: for at least two decades, several initiatives have been working steadily to document the worsening situation of rural women and to promote and disseminate technology designed to help poor rural women improve their access to technology, productive resources, and income. Today, however, new challenges are found not only in the *feminization of poverty*, but also in the globalization of the world's economy, which is changing the face of small-farmer agriculture.

These concerns highlight several issues: first, the diagnosis of technology needs and constraints faced by poor rural women has to be much more dynamic, and updated on a regular basis to keep up with the rapid rate of change in their conditions and needs. Very little is known at present about how these needs and constraints are changing. Second, the development of technologies for women needs to be closely associated with the identification and development of new opportunities and increasing labor productivity, in contrast to the approaches used in the 1980s and 1990s, which focused on alleviating drudgery and women's traditional agricultural responsibilities.

5.5.2. Key issues

Most technologies developed and practices promoted by public agricultural research centers do not adequately address women's needs and priorities

Numerous tools exist for gender analysis and diagnosis but, seemingly, no tools or guides to help scientists and extension agents effectively feed diagnostic results into research planning and adaptation

Likewise, a host of gender theories and models (e.g., intra-household) exists, but practical applications enabling those theories to be used for improving women's livelihoods are few

5.5.3. Objectives

The overall goal of the Africa Gender Initiative is to strengthen the capacity of our national R&D partners to develop innovative agricultural technologies and income

generation opportunities that address women's special needs and constraints. This project will work in close collaboration with the PRGA Program, which is currently involved in work in Africa. The goal will be to scale up the lessons learned and experiences derived from the PRGA Program's on-going research. The Initiative's specific objectives are:

To develop tools that help researchers and scientists assess information and circumstances from gender analysis, and to identify significant factors, promising next steps, and "best bet" options

To provide researchers, extension agents, and development practitioners with guides and tools, and training as to their application

To develop mechanisms for applying results from gender theories and models (e.g., intra-household), and to enable the theories to be applied to improve women's livelihoods

To institutionalize the use of gender considerations in NARES and in the academic training of agricultural researchers (e.g., at universities)

To increase opportunities for rural women by sensitizing rural communities on gender issues and enhancing women's roles in R&D processes

5.5.4. Key focal areas of research

Empirical research

This will involve conducting research to address key gaps and challenges, and to feed results into current initiatives:

Research on developing mechanisms to apply results from gender theories and models (e.g., intra-household), and to enable the theories to be used to improve women's livelihoods

Impact assessment to compare the technical, process, and cost-benefit impact of projects that apply gender analysis with those that don't.

Assessment of R&D projects to see how the integration of gender analysis influences agricultural technology development, its appropriateness, and likely adoption by women

Methods to improve the effectiveness of impact assessment by providing tools to use impact assessment information in learning that leads to change

Capacity building and tools development

Capacity building of partners in using GA in research

Tool development and testing, including decision-support tools, guides, and aids

Application of tested tools – GA, applied theory, impact assessment

Building gender awareness, and the social and human capital of communities

Application of theoretical concepts and models

Use of GA moves from diagnosis to technology development and implementation

Mainstreaming and institutionalizing the use of gender considerations in NARES and in the academic training of agricultural researchers (e.g., at universities)

Integrating GA in existing projects versus developing special GA projects

Integrating GA components versus mainstreaming GA

Iterative feedback loops that integrate GA results into the innovation process

Supporting networks that support organizational change to integrate GA priorities into R&D

Enhancing gender equity in R&D institutions and links with universities and educational initiatives

Section 6: Impact Assessment

Overview

Impact assessment (IA) work by the PRGA Program is designed to provide a body of scientifically credible evidence about the state-of-the-art in the CGIAR centers and elsewhere in the use of participatory approaches and the results obtained. This information is provided to scientists, research managers, and development practitioners who want to decide whether and how to use these approaches for agricultural and natural resource management research. To accomplish this, the Program's impact assessment research has established and maintains an inventory of participatory projects, conducts impact studies in collaboration with various research institutes, and engages in methods development and capacity building in impact assessment of participatory approaches with partner institutions.

The next section 6.2 will critically look at the Program's impact assessment research results from the first phase (1997-2002), and the lessons learned from the second phase. Section 6.3 will summarize the outputs achieved in the reporting period of April 2002-March 2003. The concluding section 6.4 will list the expected milestones for the next reporting period.

From Assessment to Learning and Change

In this section, we take a critical look backwards and discuss if the Program's impact assessment strategy has been worthwhile, and what the lessons were for the Program's second phase, and their implications for impact assessment.

Some of the methodological challenges we have been facing have demanded a new and original framework. That is, the way research is designed and implemented, and how research outcomes are assessed have had to change dramatically over the past decades. Today, research must be client-driven, collaborative, and responsive to diverse objectives. These changes have significant implications for impact assessment (IA).

First, impact assessment practitioners must document a much broader range of project impacts, for example, impact on poverty alleviation and environmental sustainability.

Second, our understanding of the number of stakeholders in impact assessment has grown dramatically and now includes center management, researchers, donors, partner institutions, beneficiaries, and civil society organizations. Different stakeholders demand different types of information in different formats. Internal rates of return and cost-benefit analyses may have been sufficient for the accountability functions of impact assessment, but they will not satisfy those who are interested in knowing how and why a project affected people's lives.

Third, a growing number of stakeholders seek information, not about the impact of a project's products, but rather of its processes. It is important that those involved in R&D projects learn from the experience and adapt their priorities and practices to continuously improve their contribution to the ongoing process of innovation.

How has the Program been able to respond to this methodological challenge? The PRGA Program staff, together with its many collaborators, has developed, tested, applied, and disseminated IA framework and tools with small grant recipients and working groups. We now have published guides on how to assess the impact of methods; these are found in four working documents (nos. 6, 7, 8, and 17) and one book *Assessing the Impact of Participatory Research and Gender Analysis* (2001) by N. Lilja and others. That these guides have been used by many of the small grant recipients is shown in their written results of project analyses. We also have over 160 cases in the Web-based project inventory, and these projects attempt to document wider ranges of impact based on these guides.

The second part of the Program's impact strategy has been to conduct collaborative impact studies. We have been directly involved in 21 projects by providing funds and some capacity building in IA. In 10 of these cases, the Program has also contributed a significant amount of human resources to conduct the assessment. In PPB, collaborative impact studies have been completed with ICARDA in Syria and WARDA in West Africa. Currently, we are conducting or completing studies with EMBRAPA in Brazil, LI-BIRD in Nepal, CIAT in Vietnam and Thailand, and CIMMYT on methods. The "PPB small grants" recipients who received IA training were CORPOICA, EMBRAPA, FIDAR, ICARDA, INIAP, IPGRI, and PROINPA. In NRM, we have directly collaborated with CIP, ICRISAT, and World Neighbours Canada, and are now collaborating with IPRA (the participatory program at CIAT) in assessing the impact of farmer research committees (also known as CIALs). The "NRM small grants" recipients who received IA training were CIFOR (Indonesia), CIMMYT (Kenya), CIP (Peru), ICRAF-AHI, ILRI (Ethiopia), and the University of Zimbabwe.

The third and last component of the Program's impact assessment strategy was to assist with capacity development, emphasizing mutual support and learning. This was implemented by the Program's IA economist, who dedicated a significant amount of time to collaborative impact studies. The economist designs and implements, and the center or institute's staff provide tools, framework, and resources. The small grant recipients are brought together in workshops to share experiences and build IA skills. For example, in Nairobi 2001, we had over 60 participants in an IA training workshop. Another effort, very recently initiated, is to work with the University of Florida to develop training materials for Web-based dissemination, potentially in collaboration with African universities. Also, an IA Web page has been established to promote the exchange of experience and evidence.

Has this capacity building, with its emphasis on mutual support and learning, paid off? One example is WARDA and its 17 national program partners: over 5 years, the PRGA

Program provided them with continuous training support in participatory methods and IA. Other organizations have also contributed to the training effort. All the collaborative training efforts have paid off and, by 2000, the participatory variety selection (PVS)

approach to upland rice improvement had reached a sustainable level. The approach is now common practice among the NARS, not a novelty. WARDA's national partners are conducting upland, lowland, and irrigated PVS trials in about 100 sites in 17 West African countries, and had involved more than 4000 farmers in the evaluation of improved rice varieties.

Impact assessment results are now being used to reinforce scientific credibility of these methods, attract donor support, disseminate the use of these methods among NARS, increase management support, and provide training.

Although IA in PRGA has introduced a novel focus of documenting process impact (i.e., feedback, human and social capital), the current use of IA results still comes up against several limitations:

Its focus on measurement

Extractive nature rather than empowering

Oriented toward donor needs only

Conducted to make judgments based on standard indicators

Struggle for objectivity and distance between evaluators and participants

Externally oriented

Lack of links with M&E

Addressing the challenges of moving from assessment to learning and changing the focus in IA is the Program's main task in IA work in its second phase. The Program will also identify ways in which IA research can be more effective in (1) demonstrating the ability of agricultural research to contribute to development goals, and (2) facilitating the use of IA results for joint decision making by various stakeholders. Assessing the extent to which R&D organizations have been able to learn and change because of their experience is an important new area for IA in the CGIAR system overall. Scientists are now increasingly applying participatory approaches to their research to better understand their clients—poor people—and their wants and needs, and thus design technologies that fit better with the complexity of their livelihoods. A similar process needs to occur in IA. One key lesson learned in participatory research is that involving stakeholders early in research leads to better targeting, greater sense of ownership, and higher impact. Only by recognizing current incentive structures and feeding into existing (if incipient and imperfect) learning processes can IA contribute to better decision making and ever-increasing impact.

Milestones Reached in 2002-2003

The Program's IA work for 2002-2003 includes four components:

Conducting empirical studies in the impact and costs of participatory plant breeding

Synthesis and dissemination of impact results through presentations to various stakeholders

Building and maintaining the Program's IA Web site

Methodology development for improving the role of IA in contributing to institutional learning and change

Impact study results for April 2002-March 2003

Over the past 4 years, in collaboration with many institutions and individuals, the PRGA Program has systematically collected scientifically credible empirical evidence of the impact and costs of participatory research in NRM and PB by conducting impact case studies. These studies analyze both the impact and costs of PRGA. Both qualitative and quantitative data are used, including existing project documentation; open-ended interviews with project staff, farmer participants, and other key informants, including community leaders and policy makers; and statistical and econometric analyses of survey data.

One case study was completed during this reporting period, with ICARDA in Syria. Another impact study, with WARDA in Côte d'Ivoire, was completed in February 2002, and written and published in 2003 as a PRGA Program working document. Two other collaborative impact case studies were started and are still in progress: one with EMBRAPA in Brazil, and the other with Local Initiatives for Biodiversity, Research and Development (LI-BIRD) in Nepal. Below is a brief summary of each of these impact studies.

6.3.2.1. ICARDA (barley in Syria)

Principal contact persons: Nina Lilja (agricultural economist, PRGA Program); Aden Aw-Hassan (agricultural economist, NRM Program); Salvatore Ceccarelli and Stefania Grando (barley breeders, Germplasm Program); William Erskine (Assistant Director General—Research, ICARDA)

Decentralized participatory barley breeding begun at ICARDA in 1997 when the initial 208 barley lines were planted on farmers' fields in nine villages throughout Syria. The impact case study assessed benefits and costs of ICARDA's participatory barley breeding approach, compared with the conventional (centralized) breeding approach, both at the farmers' level, and as returns to research. The program benefits were estimated, *ex ante*, by the economic surplus model, comparing conventional and participatory breeding. The program's cost structure was analyzed *ex post*, and costs of conventional and decentralized breeding were constructed for comparison. Farmer benefits were measured, *ex post*, by comparing adoption benefits and changes in human capital between 86 participating and 106 non-participating farmers. We also calculated the opportunity cost of farmers' time in research.

The results showed potentially significant increases to Syrian agriculture from participatory barley breeding. The discounted, research-induced benefits to Syrian agriculture from conventional barley breeding are US\$21.9. The model's results also show that the benefits in reduced research lag and the 10% yield increase resulting from participatory research increase total benefits by 90% (US\$42.7). The higher adoption ceiling for participatory breeding, compared with conventional breeding, increases the benefits a further 50% (US\$54.6). These are *ex ante* estimates of the potential benefit of PPB. Realizing these benefits depends partly on functioning extension and seed systems because, without them, autonomous diffusion may be slow.

Findings indicate that the infrastructure and personnel constitute the largest share of the breeding budget, comprising 77% when combined. The breeding approach (whether conventional, decentralized, or participatory) or breeding method used (bulk versus

pedigree) affects operational costs, which represent a relatively small share at 23% of the total breeding budget. The relative changes in costs were then calculated for changes in budget allocations according to breeding approach. The shift from conventional to participatory research increased operating costs by 56% (\$122,154).

However, simply concluding that PPB is more costly than conventional breeding is erroneous. In reality, the share of overhead and personnel costs remains fixed, and operations are adjusted according to the availability of funds. Also, most breeding programs today are already decentralized, and what our results show is that the changes in costs from conventional decentralized to participatory decentralized breeding is very small. Further calculation shows that the move from conventional to participatory breeding only increases the total breeding budget by 2%.

Note:

For more information about this study, see:

Lilja N; Aw-Hassan A. 2003. Benefits and costs of participatory barley breeding. Paper accepted as a poster presentation at the International Agricultural Economics Association meeting, held in Durban, Rep. of South Africa, August 2003. (Also forthcoming as PRGA Working Document.)

6.3.2.2. WARDA (rice in West Africa)

Principal contact persons: Nina Lilja (agricultural economist, PRGA Program); Olaf Erenstein (production economist, WARDA)

The participatory rice breeding and gender analysis approach has been used by WARDA since 1996, and subsequently adopted by its national partners. The approach can be characterized as “functionally motivated participation”, that is, trying to understand better what farmers want or need, and to feed back insights to formal research for improving future on-farm productivity.

The collaborative impact study with WARDA was completed in early 2002. Breeders and social scientists from 16 of the 17 national programs were interviewed during the annual Participatory Rice Improvement and Gender/User Analysis Workshop (PRIGA) in Côte d'Ivoire in May 2001. The impact of incorporating participatory research approaches at different stages of the varietal development process can be argued to go beyond the economic benefits associated with better crop type. “Process impacts” have occurred as a result of the participation itself rather than as a result of the technologies developed via participatory research methods. Some of these “institutional process impacts” include internal institutional changes such as changes in breeding goals and objectives, breeding methods, and spillover effects to varietal development in other crops. They also include changes to external relationships with other institutions such as seed production systems and varietal release mechanisms, and changes to these institutions themselves.

The experience with implementing participatory research has clearly provided feedback to breeders in the national programs, and this information has led to some perceived and specific internal institutional changes. Half of the national scientists say that they have changed their breeding goals, and three quarters say they have also changed their breeding methods and the ways in which they conduct breeding. Changes in external institutions such as seed production or varietal release systems have been less successful, probably because less attention was paid to forming partnerships with other stakeholders in seed and varietal release institutions and mechanisms, and more attention given to interactions with farmers. Only one third of the respondents said that they had created or improved partnership arrangements in rice research. Involvement of other stakeholders is therefore another area in which potential exists for

improving labor and the institutional and demographic context of gender; or it could remain an area limited to measuring gender differences in varietal preferences.

Note:

For more information about this study, see:

Lilja N; Erenstein O. 2002. *Institutional process impacts of participatory rice improvement and gender analysis in West Africa*. Working Document, no. 20. PRGA Program, Cali, Colombia.

6.3.2.3. EMBRAPA (cassava in Brazil)

Principal contact persons: Nadine Saad (PhD candidate in human geography); Nina Lilja (agricultural economist, PRGA Program); Wania Fukuda (plant breeder, EMBRAPA)

This impact case study builds on a previous study on participatory cassava breeding in Brazil conducted collaboratively by the PRGA Program and EMBRAPA. (Fukuda and Saad, July 2001)⁸. The main emphasis of the current study is to look at the impact of participatory research in terms of type of cassava variety developed, its adoption, and the economic benefits of adoption. We also look at the implications of participatory research for different stakeholder groups, and determine how representative the results are to various stakeholders. The Brazilian cassava project is functional in its approach, and its main objective is to bring improved cassava varieties to farmers, based on their own selection criteria. Farmer empowerment is not a specific objective for the project. Hence, we will not specifically assess the human and social capital impact in this case. The study's specific objectives are:

To assess the “soundness” of the methodology (do the results benefit intended users? Is the approach more successful in certain types of communities?)

To assess the adoption of new cassava clones selected and introduced through participatory varietal selection trials (is participatory research producing superior varieties for the intended users?)

To assess the reasons for adoption (is the biggest constraint to adoption in fact the availability of “good clean seed”, rather than the improved characteristics?)

To assess the economic benefits from adoption and implications for “well-being” (has the adoption of new cassava clones improved the well-being of the adopters?)

Data collection began in mid-2002, with interviews of 22 participating and non-participating farmers in four communities. Collection was completed in late-2002, and is now being analyzed. Publication is expected in December 2003.

(The final analysis was delayed because one researcher began PhD studies, and another took maternity leave.)

6.3.2.4. LI-BIRD (maize in Nepal)

⁸. Fukuda and Saad. July 2001.

Principal contact persons: Nina Lilja (agricultural economist); Barun Gurung (anthropologist, PRGA Program); Anil Subedi, Sanjaya Gyawali, and Anu Adhikari (LIRAD)

Details of this case study can be found in Section 4.4.

Dissemination of impact assessment research results

The year 2002-2003 provided an opportunity to reflect on some of the findings, and the results of the PNRM and PPB impact assessments were synthesized into presentations at five international meetings:

Impact of User Participation in Natural Resource Management Research
PRGA Stakeholder and Donor Meeting
22 April 2002, Bonn

Impact of Participatory Plant Breeding: An Overview
"Quality of Science in PPB" Meeting
30 September-4 October 2002, Rome

Benefits and Costs of Decentralized Participatory Barley Breeding at ICARDA, Syria
"Quality of Science in PPB" Meeting
30 September-4 October 2002, Rome

Impact of Participatory Research and Gender Analysis in Plant Breeding
CGIAR Annual General Meeting
2002, Manila, Philippines

Scaling up and out the Impact of Farmer Participatory Research
CIAT Annual Review
December 2002, Cali, Colombia

The presentations listed above are available in PowerPoint format on the PRGA Program's Web site.

Publications based on the PRGA Program's IA research were also produced:

Johnson N; Lilja N; Ashby JA. 2003. Measuring the impact of user participation in natural resource management research. *Agricultural Systems*

Lilja N; Aw-Hassan A. 2003. Benefits and costs of participatory barley breeding. Paper accepted as a poster presentation at the International Agricultural Economics Association meeting, held in Durban, Rep. of South Africa, August 2003.

Lilja N; Erenstein O. 2002. Institutional process impacts of participatory rice improvement research and gender analysis in West Africa. Working Document, no. 20. PRGA Program, Cali, Colombia.

The impact assessment Web site

The Program created an impact assessment Web site, which provides access to all publication outputs of the Program's IA research: project inventories, impact case studies, guides on IA methods, and PowerPoint formats of synthesized results presented at the various international meetings. The site also offers access to other reviewed and recommended IA research methods and empirical results. The electronic addresses are:

Impact assessment Web page:
http://www.prgaprogram.org/impact_assessment/impact.htm

Inventory Web page: <http://webpc.ciat.cgiar.org:8080/prgainventory/inventory.htm>

Methodology development for institutional learning and change

Program staff participated in the workshop on the *Role of Impact Assessment in Institutional Learning and Change* (ILAC), organized by the CGIAR Standing Panel on Impact Assessment (SPIA). The workshop was held during 4-6 February 2003 at IFPRI in Washington DC. One of its activities was to develop a proposal for systemwide effort in ILAC.

Major Expected Milestones for March 2003–April 2004

Two impact case studies—of EMBRAPA and LI-BIRD—are completed and results published as PRGA working documents

Three new impact case studies are conducted by:

IPRA (CIAT); a study on CIALs in Colombia, cofinanced by IPRA and the PRGA Program
CIAT-Asia; a cassava-based NRM study in Vietnam and Thailand—a funding proposal was submitted to and accepted by SPIA

CIMMYT; a study on the development of participatory methods at CIMMYT, cofinanced by CIMMYT and the PRGA Program

Impact assessment research results are synthesized in PowerPoint presentations and working documents and/or journal articles. These are disseminated to stakeholders at the international meetings. The following presentations are planned:

FARA meeting, 19-20 May 2003, Dakar, Senegal

PRGA Stakeholders Meeting, 30 June–1 July 2003, Cali, Colombia

International Agricultural Economics Association Annual meeting, 18-22 August 2003, Durban, Rep. of South Africa

A course module and materials on the IA of PRGA approaches are developed and taught as a graduate course at the University of Florida in June 2003

The Program's IA Web site offers a wide range of resources on methods for IA of participatory and gender analysis research, as well as empirical studies

Workshop on IA methods is planned and organized for mid-2004 Impact assessment for learning and change is integrated into two proposals for the Challenge Program on Water and Food (one by the PRGA Program and the other by ICARDA), and the Program's Gender in Africa Initiative

Section 7: The PRGA Program's Community of Knowledge and Practice

As we mentioned in Section 1.3.2.5, to facilitate the use of participatory approaches, we used several strategies to build and articulate a community of knowledge and practice. We also stimulated worldwide exchange of expertise through three listservs (PRGA-info, PBG, and PNRM) and organized a new Web site with various services. A network was established among PRGA liaison contacts and gender focal points in all the CGIAR centers. Three publicly accessible databases with information on projects were created (*Expertise*, the PPB project inventory, and the PNRM project inventory), and various training events were conducted with participants from all around the world.

Listservs

The PRGA Program manages three electronic listservs:

PRGA-info

This is a general listserv used by the Program for information dissemination and administrative purposes. Members of the other Program listservs are automatically subscribed to this list. Currently, the listserv has 420 members.

PBG Listserv

The Plant Breeding Group is the main listserv of the Program's working group of the same name. It currently hosts 200 members from over 100 countries and a range of different types of institutions. This listserv has been very active in discussing and contributing to several key pieces of work, including the PPB guidelines document, and the intellectual property rights (IPR) study.

PNRM Listserv

The Participatory Research for Natural Resource Management Listserv is a forum for researchers from the CGIAR and partner organizations who are practicing and developing participatory approaches for NRM. It is intended to provide continuity for the PNRM Working Group when between face-to-face meetings.

The PRGA Program's New Web Site

Several weaknesses of the PRGA Program's Web site were identified in the presentation given at the stakeholder meeting in Cali (30 June–1 July 2003). (You can download this presentation from: http://www.prgaprogram.org/download/stakeholder_mtg_03/communication_web.pdf.)

The Program was thus prompted to upgrade the contents of the existing Web site, while it developed a new site with improved navigation, searchability, and interactivity. User input, from the PRGA Program's working groups, was considered when developing criteria for choosing a contents management application (Box 7A).

Box 7A

Criteria for choosing a contents management application

- A Web development application that is also a *community-building tool*
- A Web development application that is easy to use so that the Web site can be maintained by staff who understand the contents, have some Web development skills, but are not necessarily IT professionals
- An application that offers an integrated set of tools for supporting the PRGA Program's communities of practice. We aim to avoid a "patchwork" approach where many different tools from various sources are used
- A design process that is user, not technology, led and that can ensure accessibility and reliability for users who have older browsers, low bandwidths, small monitors, and older printers
- Open-source applications are free. If an open-source application can provide the functionality sought, this would represent significant cost savings to the Program. Because open-source software is the product of ongoing innovation by a community of developers, and therefore belongs to the community, it is more compatible with the PRGA Program's approach than proprietary software
- An application that meets CIAT's security standards while offering:
 - An expertise directory with definable and extendable fields and user input capability
 - Searchable databases of documents and resources with user input capability. This is necessary for our toolbox of methods and learning resources, and for our project inventories
- Capacity to search the whole site
- Capacity to support multiple CGNET listservs and to permit archiving of listserv messages by linking with Web-based forums
- Capacity to queue user input for approval by a PRGA Program administrator
- An application that has the capacity to meet future user demands for functions such as:
 - Asynchronous discussion
 - Chatting
 - Capacity to support collaborative work by small subgroups (e.g., joint writing projects, and document reviews)
 - Capacity to support multiple-language interfaces

The PRGA Program also participates in the following electronic services:

id21, a development research reporting service, funded by DFID, that summarizes the latest development research

Livelihoods Connect—DFID's learning platform for sustainable livelihoods approaches

Microfinance Gateway, which is an information forum on microfinance

Participation Resource Centre, which is an information service for participation and development

Several IDS (University of Sussex) collaborative research sites

The International Institute of Rural Reconstruction (IIRR) assists the rural poor around the world to improve their lives by building on their unique assets and strengths. The IIRR achieves this through field research, training, publications, and field programs with poor communities and through partnerships with others designing the new Web site.

Based on consultations with Bellanet, PostNuke was identified, evaluated, and selected as the PRGA Program's Web development and contents management application.

Note:

See Appendix 11 for a graph showing Web site traffic for 2002-2003.

The 10 most popular resources on the PRGA Program's Web site are:

Geilfus F. 1997. 80 herramientas para el desarrollo participativo: diagnóstico, planificación, monitoreo, evaluación. PROCHALATE-IICA, San Salvador, El Salvador. 208 p.

Lilja N; Ashby JA; Sperling L, eds. 2000. Proc. seminar on "Assessing the Impact of Participatory Research and Gender Analysis", held September 1998, in Quito, Ecuador. PRGA Program, Cali, Colombia. 287 p.

Sanginga P; Lilja N; Gurung B, eds. 2002. Assessing the benefits of rural women's participation in natural resource management. Proc. workshop on "Natural Resource Management (NRM) Small Grants End-of-Project", held 13-17 November 2001, in Cali, Colombia. PRGA Program, Cali, Colombia.

Saad N. 2002. Farmer processes of experimentation and innovation: a review of the literature. Working Document, No. 21. PRGA Program, Cali, Colombia.

PRGA Program. 2000. Proc. "Participatory Research for Natural Resource Management: Continuing to Learn Together", a joint CG-PRGA/NRI Workshop, held 1-3 September 1999, in Chatham, England.

Feldstein H. 1999. An inventory of gender-related research and training in the Consultative Group on International Agricultural Research (CGIAR) centers, 1996-1998. PRGA Program, Cali, Colombia.

Arevalo M. 2002. History of institutionalization of participative research in CORPOICA. Presentation in PDF format.

Johnson N; Lilja N; Ashby JA. 2000. Characterizing and measuring the effects of incorporating stakeholder participation in natural resource management research: analysis of research benefits and costs in three case studies. Working Document No. 17. PRGA Program, Cali, Colombia. 132 p.

Ortiz O; Orrego R; Nelson R; León V. 2002. Impact evaluation of participatory development of integrated insect and disease management (IPM) for the potato crop in San Miguel, Peru. PRGA Small Grant report, Jan 1999-Dec 2001.

PRGA Program. 2000. Equity, well-being, and ecosystem health. 62 p.

During 2003, the PRGA Program added two new sections to its Web site: *Web Site of the Week*, and *Special Feature*. The address of the latter is:

http://www.prgaprogram.org/pnrm/resources/pnrm_special.htm

The following *Special Feature* items were developed:

Facilitation: A Core Competency for Participatory Natural Resource Management
 Appreciative Inquiry
 Partnerships and the World Summit on Sustainable Development
 Knowledge Management and Communities of Practice
 Spotlight on Africa (*for more details, see Appendix 12*)

Note:

Appendix 13 has descriptions of those sites highlighted in "Web Site of the Week".

The PRGA Program's Liaison Contacts in the CGIAR Centers

The PRGA Program's center liaison officers are persons appointed by the Director General of each CGIAR center (Box 7B). Their role is to disseminate information, research results, and small grant opportunities from the PRGA Program to other CGIAR scientists and research partners.

Box 7B	
The PRGA Program's liaison contacts in other CGIAR centers	
CGIAR center	Liaison officer
IFPRI	Ruth Meinzen-Dick
IITA	Nicoline de Haan
ICARDA	Aden Aw-Hassan
IRRI	Thelma Paris
CIMMYT	Mauricio Bellón
WARDA	Howard Gridley
IPGRI	Pablo Eyzaguirre
ICRAF	Steve Franzel; Ann Stroud (AHI)
IWMI	Barbara van Koppen
CIAT	Matthew Blair
CIFOR	Cynthia McDougall
CIP	Oscar Ortiz
ICLARM	Mahfuzuddin Ahmed
ICRISAT	Eva Weltzien
ILRI	Mohamed Jabbar
ISNAR	Helen Hambly

As the Program embarks on its second phase, with particular emphasis on institutionalizing gender-sensitive PR in international and national agricultural research systems, a more substantial role for the liaison officers is envisioned, coupled with more opportunities to participate in PRGA Program-sponsored activities and provide input to Program directions.

Note:

See Appendix 14 for PRGA Program's terms of reference for liaison officers.

The PRGA Program's *Expertise* and Project Inventory Databases

Expertise

Expertise is a specialized directory designed to help users locate each other, especially those with particular types of expertise in participatory research or learning approaches.

The PRGA Program's *Expertise* Database is playing an outstanding role within the community of which it is a part. The community now numbers more than 120 members, in less than a year.

A database should have the following desirable characteristics:

- Permits contact with people with expertise and specific profiles
- Enables the user to decide about the degree of confidentiality and access to personal information by other users
- Contains an agreement of confidentiality
- Has language management

A user of *Expertise* may be asked questions like the following:

- Do you have expertise in participatory research or learning approaches? Yes/No. If yes, please continue to question X ...
- What is your disciplinary background corresponding to your highest level of education?
- What is your profession or skill in applying participatory research or learning approaches?
- In what areas have you applied your expertise in participatory research or learning approaches?
- In which geographic regions have you applied your expertise?
- What languages do you speak, read, and write with fluency or proficiency?

The types of organizations that would use *Expertise* are:

- University
- NGO
- National research institute
- CGIAR center
- Community-based organization
- Private consulting firm
- Governmental agency
- Industry
- Independent consultants
- Farmer or producer organization
- Consumer organization

7.4.2. Project inventories

During 2001, a selected group participated in a survey by the PRGA Program to determine the impact of participatory plant breeding (PPB) and participatory natural resource management research (PNRM) projects.

These results were compiled and posted as project inventories on the PRGA Program Web site by Peggy McKee (consultant, PRGA Program) and Doryan Colunge (Web master, Information Systems, CIAT).

Our goal is to provide a systematic assessment of the impact resulting from the use of participatory research (PR) and gender analysis (GA), and to make this information available to researchers, development practitioners, farmers, donors, and others interested in the field.

Learning and Capacity Building

Learning and capacity building have been key elements in the PRGA Program's strategy for mainstreaming the use of participatory and gender-sensitive approaches. The Program's ICER, conducted in November 2001, reported the following on the Program's achievements in this area:

"Capacity building on the design, planning, and implementation of participatory efforts have implications not only for improving the delivery and impact of research but also for wider human and social capital formation among the actors as well as in the targeted communities. The Program in this regard has made good progress. The effort of two regionally based (Asia and Africa) PRGA fellows has been instrumental".⁹

Training by the PRGA Program has included awareness building, skill enhancement, and practical field application. The Program has incorporated its findings on impact and types of participation and gender analysis into workshops offered in many parts of the world and in widely distributed training materials.

Numerous training events have been held on:

Participatory research methods, processes, and skills for NRM and PB
Tools and methods for gender and/or stakeholder analyses
Participatory monitoring and evaluation, and impact assessment procedures
Elements and skills for forming and sustaining effective partnerships for participation

The Program has also built partnerships for capacity building into collaborative research projects with other systemwide programs and networks.

Workshops have been instrumental in increasing the understanding of PRGA approaches, and building practical skills for their application. Demand for capacity building has increased and is currently beyond the Program's actual capacities.

Building Capacity in Social and Gender Analysis in the Eastern Himalayan Region

⁹. Prain et al. 2000.

This activity will bring together researchers involved in biodiversity and NRM-related projects for iterative training on social and gender analysis (S/GA) concepts and methodologies. A team of trainers-cum-mentors will work with 18 participants from the Eastern Himalayan Region, which encompasses northern and northeastern India, Bhutan, Bangladesh (Chittagong Hill Tracts), and eastern Nepal. A coordinating group, the Northeast Network, will help develop and implement the training program, and facilitate interaction and networking among the participants, who will thus become “emerging regional specialists on social and gender analysis in NRM”. The project will take 2 years, and involve a series of training courses in concepts and practical methods; the courses being implemented through a small grant and action plan. Results will be disseminated through various media, including papers for publication in refereed journals.

7.6.1. Background and rationale

Several NRM research partners in the Eastern Himalayan Region have requested support and training to implement social and gender analysis in the field. Expertise in S/GA is notably lacking among researchers in the region, particularly in the NRM context. The project will adapt and build on the framework first developed by an IDRC project in Vietnam on *Engendering Research* in which the project team worked with regional partners in the project’s design and development.

This iterative training program aims to address issues identified by partners as critical in training and capacity building in S/GA in NRM:

A need for on-going training programs that support researchers over time and build on continual learning. Social and gender analysis is not learned overnight, nor in one short training program. Participants need to continually build on their skills and practice over time, and will therefore need long-term support and input through an iterative learning process that includes challenges and difficulties along the way.

A need for training and support for the practical application of S/GA in the field. Many researchers have some conceptual understanding of social and gender issues but feel at a loss as to how to practically implement S/GA practices in the field, and in a socioculturally appropriate manner. What are the tools and methods? How are these approaches integrated with natural science approaches and methods? How does one move beyond the “analysis” to a transforming agenda that improves livelihood conditions and increase equity among disadvantaged groups?

A need for socioculturally relevant training programs. Asia possesses an incredible diversity of culture and language, so much so that training programs in Vietnam may not be relevant to a researcher from Bangladesh. Societal, cultural, religious, and language differences abound, and while opportunities for cross-cultural learning may exist between these groups, there are also advantages to training programs that are socioculturally relevant and in a common language. Likewise, where political and cultural hegemony issues exist such as those between Indians residing in the Indo-Gangetic Plains and minority groups in the Northeast, a dimension of power and, sometimes, hostility is added that can hinder training.

For example, evidence suggests that many gender norms and social structures are shared across Pakistan, Bangladesh, the Indian Plains, and Sri Lanka, yet cultural groups from NE India may have more in common with counterparts in Southeast Asia. Efforts to build a socioculturally appropriate training program

can help build a favorable environment for sharing and learning, as well as be more cultural relevant in discussing social and gender issues and methods for their analysis.

S/GA relevant to NRM research. As discussed above, most S/GA training programs are not directed at NRM researchers nor do they consider issues in the NRM context. Thus, a need exists to consider the issues and approaches most relevant to NRM research.

7.6.2. Objectives

To build the capacity of researchers in the Eastern Himalayan Region to integrate and practically apply S/GA in biodiversity and NRM-related projects

To support partners in developing approaches and methodologies suitable to the regional context of the Eastern Himalayas

To develop training processes and materials appropriate to the region

To assist NRM researchers interested in S/GA research to obtain peer support and to network in the region

Section 8: Looking Ahead

The major objectives and strategies for the PRGA Program's second phase will build on the lessons and strengths of the past. It will also focus more specifically on mainstreaming PRGA approaches, as described in section 1.1.1.2:

Capacity development in methods that ensure gender-equitable, stakeholder-client representation in research decision making; and networking within a cadre of champions who support each other and who can make a difference

Continue to build compelling evidence of impact

Develop action research partnerships to institutionalize PRGA approaches within a core of IARCs and NARS

Communications and partnerships for disseminating information and devolving Program activities, responsibilities, and decision making to stakeholders

8.1. PRGA Program's Stakeholder Meeting

The Program's Stakeholder Meeting was held in Cali, Colombia, from 30 June to 1 July 2003. The Meeting's principal objectives were:

To provide an opportunity for the stakeholders to give inputs to the draft of the Program's 2003-2007 logical framework before it is finalized and approved by the Program's Advisory Board on 2 July

To provide an opportunity for each of the two working groups—PNRM-wg and PBG—to formulate work plans in light of future programmatic directions and emerging opportunities in the field

To identify funding prospects and strategies for accessing funds

To identify key partnerships, especially with the CGIAR's Challenge Programs

The workshop was limited to 45 persons, who represented the following stakeholder groups: the Program's Advisory Board, funding partners, center liaison officers, 7 representatives elected from each working group, selected resource persons, and staff.

During the Stakeholder Meeting, the PRGA Program's Coordination and the PBG representative consulted with the wider working group for inputs to the Program's draft of its 2003-2007 logframe (Appendix 1).

The following procedure was used to start the consultation:

Correspond by e-mail several days before the Meeting, discussing the questions for consultation

Send messages with the consultation questions to the PBG via the listserv

Agree on responsibilities for summarizing the responses in time for presentation at the Stakeholder Meeting

Challenge Programs

A proposal was submitted to the Challenge Program on Water and Food, entitled *Ensuring Benefits for Those who Need Them Most: Building Strong Institutions for Managing Inclusive multi-Stakeholder Processes for Watershed Development*. The goal is "To improve the long term sustainability and equity of water management by enable the rural poor, especially women, to gain greater influence over the agendas and outputs of agricultural and natural resource management research by mainstreaming and scaling up R&D practices that integrate the social, institutional and biophysical dimensions of natural resource management". The partners of the project would include those working in the Nile and Yellow River Basins: the China Agricultural University, CIAT, CIP, Farm Africa (Ethiopia, Kenya, Tanzania), ILRI, Makerere Institute of Social Research (Uganda), and the PRGA Program. The budget requested is US\$900,000, and would be received from the Small Grants Program. The decision on the proposal's funding will be announced in October 2003.

Future Events

Millennium Ecosystem Assessment Meeting

A workshop promoting the book *Managing Natural Resources for Sustainable Livelihoods: Uniting Science and Participation* will be presented at the Millennium Ecosystem Assessment Meeting to be held in Alexandria, Egypt, in March 2004. A description of the workshop is given in Box 8A.

Box 8A

Promotional workshop for the book *Managing Natural Resources for Sustainable Livelihoods: Uniting Science and Participation*

Workshop's title

A World Café¹ on *Uniting Indigenous and Scientific Knowledge and Epistemologies for Sustainable Livelihoods and Improved Management of Natural Resources*

Café Host

Barry Pound, Natural Resources Institute (NRI), UK

Presenters

Sieglinde Snapp, Michigan State University, USA

Cynthia McDougall, Centre for International Forestry Research (CIFOR), Indonesia

Diane Rocheleau, Clark University, MA, USA

Ann Braun, PRGA Program

Objectives and outcomes

The presenters will reflect on the process of research for natural resource management when this research is part of a learning process shared by multiple stakeholders. Their presentations draw on chapters from their forthcoming book *Managing Natural Resources for Sustainable Livelihoods: Uniting Science and Participation*, and will focus on:

Challenges of complexity and dynamism in natural resource management and the social construction of indigenous and scientific knowledge and world views

Partnership and scale issues inherent in integrating indigenous and scientific knowledge

Principles of "good practice" for participatory natural resource management research

Current and future challenges in natural resource management research

Café participants will be invited to test the ideas offered by the presenters against their wider experiences. The Café will then develop an extended analysis of the material to be presented as an input for a companion publication to the book.

The World Café procedure

36 participants will be seated at 4 tables under the themes of "Complexity", "Partnership and Scale", "Good Practice", and "Challenges".

Plenary presentations

Introduction, explanation of the workshop process, and election of a Host for each table (10 minutes)

Presentations by each entertainer, followed a summary and questions facilitated by the Café Host (60 min)

Café Tables, Round I

Discussion of each theme (as represented by the tables) (40 min)

Break (15 min)

Café Tables, Round II

(Participants are moved around as follows: Table Host, 1 panelist, and 1 participant stay at their table, lose their table companions, and, in their place, receive 2 participants from each of the other tables)

Table Host summarizes Round 1 discussions (10 min)
Discussion of each table theme, incorporating perspectives from the other tables (40 min)
Break (Table Hosts prepare presentations, others relax) (10 min)

Plenary presentations

Presentations by each Table Host (40 min)
Questions and summary facilitated by Café Host (15 min)

"World Café" is a Web site designed to be "a living network of conversation around questions that matter".

Future publication

Gurung B; Menter H. Mainstreaming gender-sensitive participatory approaches: the CIAT case study. In: Pachico D, ed. Scaling up and out: achieving widespread impact through agricultural research. Centro Internacional de Agricultura Tropical (CIAT), Cali, Colombia. (In press.)

Section 9: Publications in 2002-2003

9.1. Refereed Journal Articles

Buruchara R; Sperling L; Ewell P; Kirkby R. 2002. The role of research institutions in seed-related disaster relief: Seeds of Hope experiences in Rwanda. *Disasters* 26(4). Special issue.

Gurung B. 2002. Addressing food scarcity in marginal mountain environments: a participatory seed management initiative with women and men in eastern Nepal. *Mountain Res Dev* 22(3):240-247.

Longley C; Sperling L, eds. 2002. Beyond seeds and tools: effective support to farmers in emergencies. *Disasters* 26(4). Special issue.

Sperling L. 2002. Seeds of Hope in Rwanda - what have we learned? *Geneflow* p 24-25.

Sperling L. 2002. Emergency seed aid in Kenya: some case study insights on lessons learned during the 1990s. *Disasters* 26(4). Special issue.

9.2. Working Documents

Lilja N; Johnson N. 2002. Guide to impact assessment in participatory research and gender analysis. Working Document, No. 7. PRGA Program, Cali, Colombia.

Lilja N; Erenstein O. 2002. Institutional process impacts of participatory rice improvement research and gender analysis in West Africa. Working Document, No. 20. PRGA Program, Cali, Colombia.

Saad N. 2002. Farmer processes of experimentation and innovation: a review of the literature. Working Document, No. 21. PRGA Program, Cali, Colombia.

Sanginga PC; Lilja N; Tumwine J. Year? Assessing the quality of participation in farmers' research groups in the highlands of Kabale, Uganda. Working Document, No. 19. PRGA Program, Cali, Colombia.

9.3. Reports

PRGA Program, CGIAR. 2002. PRGA Program: synthesis of Phase I (1997-2002). Prepared by Nadine Saad. PRGA Program; CIAT, Cali, Colombia. (Version with color illus. and photos published in 2003.)

PRGA Program, CGIAR. 2002. PRGA Program's summary annual report, 2002. Prepared by Nadine Saad. PRGA Program; CIAT, Cali, Colombia.

9.4. Proceedings published by the PRGA Program

CIAT; JIRCAS; PRGA Program. 2002. *Proc. workshop on "How Participatory Research Can Complement Conventional Research Approaches", held in Tsukuba, Japan, 4-8 March 2002.*

PRGA Program, CGIAR. 2002. *Proc. Stakeholders Meeting, held in Bonn, Germany, 22-23 April 2002. (Hosted by the German Ministry for Economic Cooperation and Development—BMZ.)*

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Appendices

PRGA Program's Logical Framework for 2003-2007

Overall goal and purpose of the PRGA Program			
Narrative Summary	Measurable Indicators	Means of Verification	Important Assumptions
<p>Goal:</p> <p>Improve the competencies of the CG System and collaborating institutions to mainstream the use of gender-sensitive participatory approaches in Plant Breeding, crop, and Natural Resources Management research.</p>	<p>By the end of 5 years, participating institutions in the CG system and NARs have an increased capacity to use PR&GA methods and institutionalize them in their own organizations</p> <p>Use of PR and GA integrated into the participating CG centers and partner institutions' core research</p> <p>PR and GA incorporated into organizational policies and practices of at least 2 IARCs and 5 NARs at the end of 5 years</p>	<p>Program monitoring and assessment of use of PR & GA approaches by IARCs and their partners, including institutional analyses of mainstreaming and process outcomes</p> <p>Program monitoring and assessment of PR&GA capacity in the participating institutions</p> <p>External review reports</p> <p>Reports of collaborating institutions</p>	<p>CGIAR centers and partner institutions willing to commit staff and budget to using PR&GA, to contribute to capacity building, and to integrate PR&GA into their core research agenda</p>
<p>Project purpose:</p> <p>Assess and develop methodologies to mainstream PR&GA approaches through organizational change</p>	<p>effective approaches developed and disseminated for mainstreaming PR&GA methods; methods recognized and understood by relevant senior management and staff; and being applied appropriately by at least 70% of institutions supported by Program research and capacity building at the end of 5 years</p> <p>impact of mainstreaming PR&GA approaches documented in multiple studies</p>	<p>Program publications; IARC annual reviews, reports and publications</p> <p>Published results of Program's impact studies</p> <p>Results of Program partnerships</p> <p>External review reports</p> <p>Reports of collaborating institutions</p>	<p>donor commitment to the Program constant over the 5 year period.</p> <p>IARCs and other institutions collaborating with the Program able to include results in the institution's reports and annual reviews</p> <p>Stakeholders willing to contribute actively to Program planning and evaluation</p>
<p>Overall Output I: Capacity developed to encourage gender-equitable, stakeholder client Representation in research decision-making, and networking a cadre of 'champions' who support each other and who can make a</p>			

difference			
Narrative summary	Measurable indicators	Means of verification	Important assumptions
<p>Specific outputs:</p> <p>1. Development of effective methods and capacity for using PR & GA; Impact Assessment; and organizational development concepts and skills for mainstreaming these approaches</p>	<p>Field training manual for PR & GA, IA, and Organizational development developed and widely disseminated. This document should also provide a brief review of existing PR&GA, IA, and OD methods, and draw on best practices in developing guidelines</p> <p>Methods workshop held for PR, GA, IA and OD, training a minimum of 80 participants in a variety of 'best practice' approaches; and follow-up support extended to participants to enable them to continue change process in their respective institutions</p>	<p>Published field manual</p> <p>Training reports</p> <p>Collaborators' reports</p> <p>Annual report and Program's Web site</p>	<p>Potential partner institutions are willing and interested in collaborating with the PRGA Program</p> <p>Funding partners interested in supporting capacity building</p> <p>IARCS and partner institutions willing to commit budget and human resources for internal capacity development</p>
<p>2. Assessment of effects of institutionalization of PR& GA approaches through organizational change</p>	<p>Research results published and disseminated on the process of institutionalization through organizational change</p>	<p>Workshop summary reports</p> <p>Manuals produced from workshop outcomes</p> <p>Annual report and Program's Web site</p> <p>Collaborators' reports</p>	<p>Centers and NARS interested in and contributing budget and human resources to participate in workshops and to host local follow-up training</p>
<p>3. Identification of opportunities and constraints for mainstreaming PR&GA through organizational change</p>	<p>Institutional analysis conducted with partner institutions and 'best practices' analysed and disseminated through publications</p> <p>Collaborative action research undertaken, and strategic partnerships formed</p>	<p>Program publications, possible PhD dissertation</p> <p>Program Web site</p> <p>Annual reports</p> <p>Collaborators' reports</p>	<p>Partner institutions willing and interested in participating in action research</p> <p>Funding partners interested in supporting small grants schemes to support action research for institutionalization</p>
<p>Overall Output II: Evidence of the impact of participatory research (PR) methods assessed, and methods Developed to permit impact assessment (IA) results to be effectively integrated into</p>			

Research and development (R&D) decision making			
Narrative summary	Measurable indicators	Means of verification	<u>Important assumptions</u>
<p>Specific outputs:</p> <p>1. Empirical studies on PR methods in PB and NRM assessed</p>	<p>At least 5 partnership studies undertaken and published as working documents and in professional journals, plus an analysis of impact of different PR approaches under contrasting conditions, including biophysical, institutional, and policy environments</p> <p>Published results and impact of methods disseminated to CGIAR liaison contacts (to disseminate to center scientists), PNRM-wg and PBG, CGIAR libraries, and donor community. Twice a year, a list of all PRGA Program publications and Web site addresses sent to CGIAR director generals for distribution</p> <p>Research briefs and PowerPoint presentations, prepared to succinctly highlight IA results, are widely disseminated to IARCs, NARS, and NGOs</p> <p>Workshops conducted to exchange results</p> <p>IA tools developed and training materials made available</p>	<p>IA studies and methods</p> <p>Program's publications, briefs, presentations, journal articles, books, Web site</p> <p>Annual reports, workshop proceedings</p>	<p>IARCs and partner institutions willing to collaborate in IA</p> <p>Funds available to conduct empirical studies</p>
<p>2. Tools and methods developed and disseminated to enable scientists</p>	<p>Collaborative action research conducted with at least 5 partners</p>	<p>Published studies on IA tools and methods, and assessments of their</p>	<p>Partner institutions</p>

to capture impact of products and processes, and integrate learning from IA into research planning and adaptation (learning and change)	<p>to develop, test, and assess methods for (a) improving information resulting from IA (product and process impacts), (b) identifying IA objectives and tools to achieve them, and (c) assessing the contribution of IA to organizational learning and change</p> <p>Studies and guidelines are widely disseminated to IARCs, NARS, and NGOs</p> <p>Capacity development through training, consultancies, and learning workshops</p>	<p>effectiveness in improving the usefulness of IA and stimulating organizational learning and change</p> <p>Annual reports, collaborators' reports, Program's Web site</p>	<p>interested and willing to participate in action research</p> <p>Funding partners interested in supporting these initiatives</p>
Overall Output III: Action research partnerships formed to institutionalize PR&GA with core group of IARCS and NARS			
Narrative summary	Measurable indicators	Means of verification	Important assumptions
<p>Specific outputs:</p> <p>Opportunities and constraints identified for mainstreaming PRGA approaches into agricultural research institutions, and strategies developed to institutionalize these approaches</p>	<p>Action research undertaken with 8 IARCs or partner institutions, and studies published</p> <p>5 internal working groups formed to spearhead organizational change and mainstream PRGA in their respective institutions</p> <p>Mentoring and capacity building provided to partner institutions to guide and lend support to the</p>	<p>Program's publications, journal articles</p> <p>Collaborators' reports and publications</p> <p>Annual report and Program's Web site</p>	<p>Partner institutions willing and interested in engaging in action research for mainstreaming PRGA and organizational</p>

	mainstreaming process		change Funding partners interested in supporting action research and capacity building
Partnerships formed with organizations that enable the PRGA Program to have a major impact on: (a) integrating PRGA into agricultural research practice, and (b) enhancing methods and approaches that help improve the livelihoods of the very poor, particularly rural women	<p>Robust partnerships are formed with Challenge Programs, regional networks, and prominent national partners that have, or have the potential to have, considerable impact on the rural poor</p> <p>The nature of collaboration takes the form of either (1) exploiting synergies in objectives, (2) taking opportunities to considerably expand the integration or improve the quality of the PRGA practiced, or (3) incorporating PRGA approaches where they would otherwise be absent or weakly applied</p> <p>PBG and PNRM-wg are engaged in the partnership process, as reflected in their work plans</p>	<p>Collaborators' reports</p> <p>Annual report and Program's Web site</p>	<p>Potential partner institutions are willing and interested in collaborating with the PRGA Program</p> <p>With support from the Program, working groups are willing and interested in collaborating with different partners</p> <p>Funding partners interested in supporting fruitful engagement with partners</p>
Capacity of IARC and NARS scientists to use "best practice" for PR, GA, and IA, and organizational development methods is considerably	Methods workshops held for PR, GA, and IA, training a minimum of 80 trainers in a variety of "best practice" approaches; and follow-up support extended to trainers	<p>Workshop summary reports</p> <p>Manuals produced from workshop outcomes</p> <p>Annual report and Program's Web site</p>	Centers and NARS interested in and contributing budget and

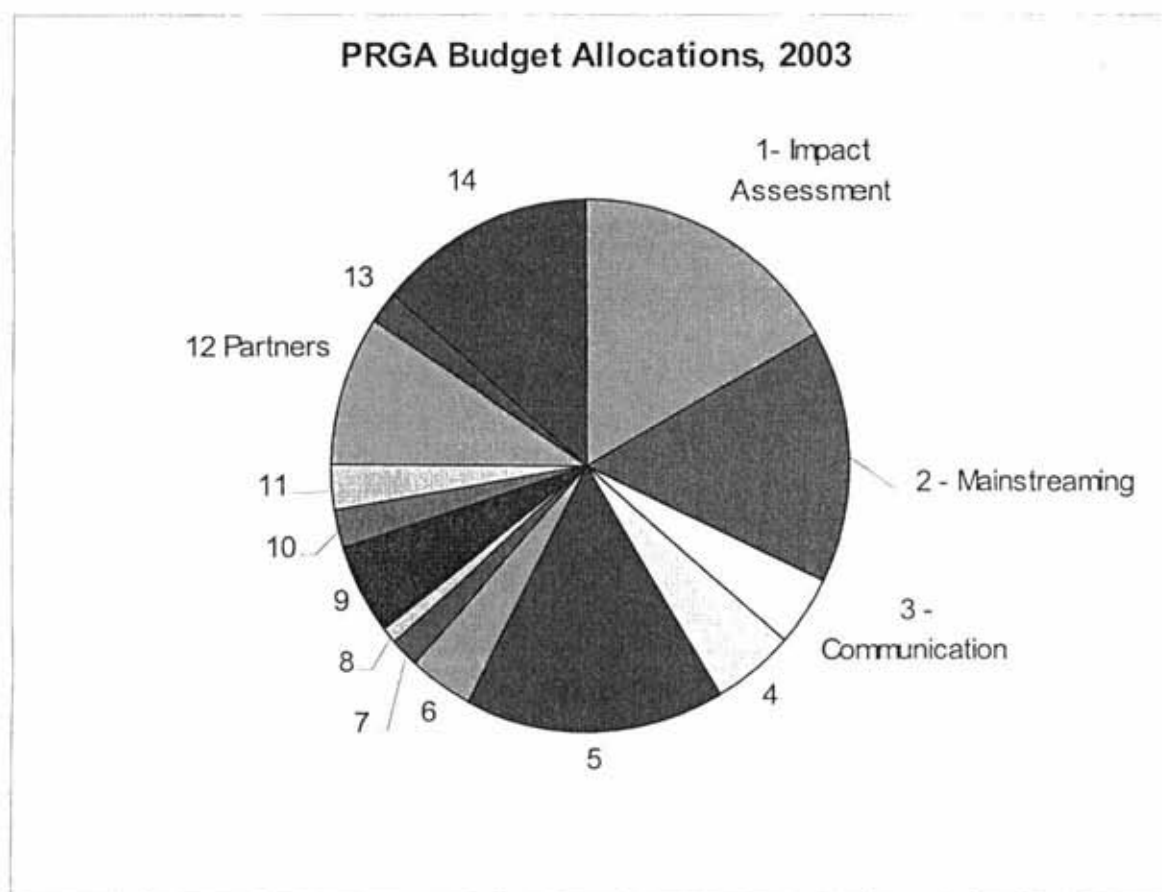
strengthened through training of trainers	to enable them to provide training and technical support to scientists in their institutes Manuals produced on "best practice" in PR, GA and IA, based on workshop outcomes	Collaborators' reports	human resources to participate in workshops and to host local follow-up training
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Overall Output IV: Partnerships and communication for devolution and disseminating information			
Narrative summary	Measurable indicators	Means of verification	Important assumptions
<p>Specific outputs:</p> <p>PRGA Program's interactive Web site launched and attracts a large and diverse range of users who not only read, but also contribute to the site's contents</p>	<p>Site developed that is friendly and accessible to users in developing countries with slow modem connections</p> <p>Site contains a rich set of research findings and resources that are relevant to users, and is regularly updated</p>	<p>Monthly Web site statistics: number of hits, visitor sessions, and downloads</p>	<p>Users have the interest and time to contribute to Web site contents</p> <p>A qualified individual (Communications Officer) is identified to manage and update the site's contents</p> <p>Donors interested in providing support for the technical development of the new site and the Program's capacity for communications</p>
<p>Awareness of PRGA research results and other publications is considerably heightened, particularly among agricultural</p>	<p>Systems in place to regularly publicize new PRGA research results through PRGA-info Listserv, Web, and printed copies to authors, donors, and CGIAR libraries</p> <p>PRGA Program's liaison contacts regularly forward publicity on PRGA to their Center scientists</p>	<p>PRGA-info Listserv membership (number and profession)</p> <p>Monthly Web site statistics, particularly downloaded</p>	<p>PRGA Program has the capacity to strengthen relationships with its liaison contacts and ensure their commitment to disseminating information on PRGA</p> <p>A qualified individual</p>

scientists	New sources of distribution are identified Membership to PRGA-info Listserv doubles to 800 members	publications Requests for hard copy publications, including from scientists who are not members of PRGA-info Listserv	(Communications Officer) is identified to promote awareness Donors are interested in supporting the Program's capacity for communications
Research results published in media favored by nonacademic audiences and researchers not well acquainted with the PRGA field	Packaging of research results in 1-2 page brief forms, disseminated both as hard copy and electronic form Mailing list built to include IARC and NARS scientists, NGO practitioners, civil society organizations, and policy makers	Mailing list membership for briefs (numbers and professions)	Donors interested in supporting the Program's capacity for communications and mailing costs A qualified individual (Communications Officer) is identified to prepare briefs from PRGA Program's research publications
Enhanced support function from working groups and other partners	Assist in fund raising, particularly in areas of their expertise Increased decision-making in Program activities related to their area of expertise Establishing objectives and activities related to their area of expertise	Funds raised in areas of expertise of working groups	Interest and willingness of working groups and other partners to participate actively in the Program decision-making through shared responsibilities

Appendix 2

Budget Allocations for 2003



Project Title	Personnel	Amount (US\$)
Impact assessment	Nina Lilja, impact studies	163,000
Mainstreaming and institutional'n	Barun Gurung	144,000
Communications and outreach	Communications Officer	40,000
	½ Ann Braun	
ILRI-PRGA Program, participatory research/Forages	½ Ralph Roothaert	47,500
Non-project staff	Project Manager	155,700
	½ Louise Sperling	
	Administrative Assistant	
	½ driver	
PNRM-wg	Facilitator	40,000
PBG		15,000
Challenge programs		10,000
Stakeholder and Advisory Board meetings		55,000
Other meetings (e.g., AGM, CIAT AM)		19,000
Publications production and dissemination		29,000
Support to partners (small grants, PBA impact studies, EMBRAPA)		85,642
Supplies and operations		20,000
Indirect costs		132,000
Total		955,842

Appendix 3

Conditions and Opportunities for the Awarding of Small Grants

Conditions

Small Grants for projects are awarded on the basis of prior agreement to the following conditions:

That:

A contribution is made to methodology or organizational innovation in the field of participatory research (PR) and/or gender analysis (GA)

A commitment is made to take a comparative perspective

A work plan submitted

Evidence is provided that the project in question will work with farmer organizations or groups

Collaborative research will be conducted with at least two of the following interinstitutional linkages: international agricultural research centers (IARCs), governmental organizations (GOs), nongovernmental organizations (NGOs), and farmer organizations

Explicit consideration will be given to issues of gender and stakeholder differences in the proposed project

Both men and women are involved in both the research and proposed interventions

- Any strategy for multidisciplinary team work involves social and natural science skills
- Plans are made to build on farmers' skills
- Plans are made for monitoring and evaluation (M&E) and impact assessment (IA)
- Roles of all partners in research and capacity building are clearly defined
- A clear statement is given of the resources available and the resources needed
- Plans are made for sustaining the Project's activities at community level and phasing out the Project itself
- Plans are made for organizing a farmer stakeholder oversight committee that will receive regular progress reports on the Project

Grant recipients will also be willing to:

- Work on a common research design with agreed-upon key variables to be monitored across sites
- Provide an accounting of how project resources will be allocated among partners
- Participate in comparative analysis
- Implement interventions agreed upon jointly
- Monitor impact, using similar procedures and indicators and to ensure documentation.
- Organize a broad-based seminar or workshop at the Small-Grant Program headquarters under the auspices of the CGIAR Program on Participatory Research and Gender Analysis for Technology Development and Institutional Innovation (PRGA Program)
- Undergo peer review by sharing experiences at international workshops held annually by the PRGA Program
- Co-publish with local partners and the PRGA Program
- Participate in annual IA seminars or workshops organized by the PRGA Program
- Participate in internally or externally commissioned reviews or visits by PRGA Program staff, members of Technical Advisory Committee (TAC), other CGIAR entities, and donors

For its part, the PRGA Program agrees to:

- Facilitate e-mail discussions, where key variables will be commonly monitored across sites
- Exchange information and experience with a wider research network, facilitated by a mechanism of "process exchange", whereby project teams can share ideas and advances every 6 months
- Synthesize lessons about what works with PRGA methodology and what does not, as derived from comparative analyses
- Convene annual regional or international seminars, workshops, or other training, as needed, in methods for effective PR, GA, and IA
- Publish research results in PRGA Program publications
- Contribute expertise to seminars or workshops organized at the Small-Grant Program headquarters

Example of a Letter of Agreement (LOA) on a Plant Breeding Small Grants Fund

Date

Name and address of recipient

Dear ...

I am pleased to inform you that a grant of US\$ *(amount in numbers)* *(amount in words)* to the *(recipient institution, country)* has been approved by the Plant Breeding Small

Grants Fund of the CGIAR systemwide Program on Participatory Research and Gender Analysis for Technology Development and Institutional Innovation (hereafter PRGA Program), convened by the International Center for Tropical Agriculture (hereafter CIAT). The PRGA Program is sponsored by ACIAR (Australia); IDRC (Canada); and the governments of Denmark, Germany, Italy, Japan, the Netherlands, New Zealand, Norway, and Switzerland.

This grant is subject to the availability of funds from our sponsors and the conditions stated below:

Purpose: This grant will finance the activities of the project entitled (*title of project*) (hereafter the Project) as submitted to the PRGA Program. The (*recipient institution*), representing this Project, and the PRGA Program are subject to the conditions and opportunities stipulated below. The Project will take place in (*place*).

Budget: The grant is intended to cover expenditures shown in the proposal submitted to the PRGA Program and summarized in the table below (values are in USD):

	Year 1	Year 2	Year 3	Total
Supplies				
Services				
Travel				
Total				

The PRGA Program's policy specifies that no more than 9% of the above total grant can be used to cover project administration costs.

Reporting: The (*recipient institution*) will report to Projects Office at CIAT in Cali, Colombia, as follows:

Technical research reports for the Project shall be submitted at 6-monthly intervals throughout the Project's duration, according to the technical reporting format the final report format may include changes. Due dates are as follows:

Technical report	Due date after receipt of the signed LOA
First	6 months
Second	12 months
Third	18 months
Fourth	24 months
Fifth	30 months
Final	36 months

Annual financial reports detailing the funds expended by the (*recipient institution*) with respect to this grant shall be submitted according to the financial report format. The financial administrator of the (*recipient institution*) should certify the financial reports. Any subsequent disbursement of funds is conditional on the timely submission and acceptance of both financial and technical reports by the CIAT Projects Office. Due dates are as follows:

	Due date after receipt of the
--	-------------------------------

Financial report	signed LOA
First	12 months
Second	24 months
Third	36 months

Payments: On receiving the countersigned copy of this contract, CIAT will make the first payment of US\$ (amount in numbers) (amount in words). The following disbursements will be as follows:

Second disbursement: US\$ (amount in numbers) after acceptance of the first year technical and financial reports

Third disbursement: US\$ (amount in numbers) after acceptance of the second year technical and financial reports

The aforementioned payments will be made to the following bank and bank account. Should the information below be incomplete, please return the signed copy of contract, specifying the correct information:

Name of account:	_____	Account no.:	_____
Bank name:	_____	Bank branch:	_____
Branch address:	_____	Swift code:	_____

Co-financing: The (recipient institution) and partner institutions agree to contribute US\$ (amount in numbers) toward the Project, which is the amount specified in the approved version of the proposal submitted to the PRGA Program's Coordination Office.

Property rights: It is understood that, in any publication or production of any material, including written material, films, and tapes that result from this Project, the (recipient institution) will recognize the financial support of the PRGA Program. All publications should include the following acknowledgement:

This work was carried out in collaboration with the CGIAR systemwide Program on Participatory Research and Gender Analysis for Technology Development and Institutional Innovation, convened by CIAT, Cali, Colombia.

It is also understood that the publication of the Project results will be effected jointly by all partner institutions involved in carrying out the Project, unless all parties agree otherwise in writing. The (recipient institution) shall send one copy of any written materials and one copy of any audiovisual materials to the PRGA Program's Coordination Office at the address given in Paragraph 7. The PRGA Program shall have the right to use, copy, and distribute them.

Communications: The (recipient institution) shall forward to the CIAT Projects Office, at the address given below, a copy of this contract signed by an authorized representative of the (recipient institution). All reports shall also be sent to the following address:

Head, Projects Office, CIAT
A.A. 6713, Cali, Colombia
Phone: (57-2) 445 0000 ext. 3004; fax: (57-2) 445 0073
E-mail: prga@cgiar.org

Any inquiries in pursuit of technical or research concerns should be directed to the PRGA Program's Coordination Office at CIAT at the following address:

Assistant Coordinator
PRGA Program, CIAT
A.A. 6713, Cali, Colombia
Phone: (57-2) 445 0000 ext. 3131; fax: (57-2) 445 0073
E-mail: prga@cgiar.org

Return of funds: Within a reasonable time after the Project is completed, the (*recipient institution*) shall return to CIAT any grant funds not used for the Project.

Yours sincerely,
Joachim Voss
Director General
CIAT

Agreed, in the name of the (*recipient institution*)

Per: _____

Title: _____

Date: _____

Appendix 4

Donor Agencies

International Development Research Centre (IDRC)
PO Box 8500
Ottawa, Canada K1G 3H9
Fax: (1-613) 567 7749

Istituto Agronomico per l'Oltremare,
Italian Ministry of Foreign Affairs
Via Antonio Cocchi, 4
50131 Firenze, Italy
Phone: (39-055) 506 1328; fax: 506 1333

Ministry of Foreign Affairs
DCO-OZ (Research and Developing Countries Division)
PO Box 20061
2500 ED The Hague, Netherlands

Ministry of Foreign Affairs and Trade (MFAT)
Stafford House 40
The Terrace, Private Bag 18 901
Wellington, New Zealand

Royal Ministry of Foreign Affairs
PO Box 8114
Dept. N-0032
Oslo, Norway

Swiss Agency for Development and Cooperation (SDC)
 Federal Ministry of Foreign Affairs
 Eigerstrasse 73
 CH-3003 Bern, Switzerland
 Fax: (41-31) 324-1693

Canadian	International	Development	Agency	(CIDA)
200	Promenade	du		Portage
Gatineau,	Quebec,	Canada	K1A	0G4
Phone: (819)	997-5006;	toll	free;	1-800-230-6349
Fax: (819) 953-6088				

Appendix 5

PRGA Program Personnel

The following lists the members of staff of CGIAR's systemwide Program on Participatory Research and Gender Analysis for Technology Development and Institutional Innovation (PRGA Program), based at the International Center for Agriculture (CIAT) in Cali, Colombia:

Principal staff

Barun Gurung, PhD in Anthropology
 Senior Research Fellow
 Program Coordinator

Nina Lilja, PhD in Agricultural Economics
 Senior Scientist
 Impact Assessment

Ralph Roothaert, PhD in Crop and Weed Ecology
 Senior Scientist, Forages for Smallholders Project
 Joint appointment between CIAT and the International Livestock Research Institute (ILRI, Addis Ababa, Ethiopia)

Support staff

Support staff positions are funded by the PRGA Program and are based at CIAT, Cali, Colombia.

Alvaro Vélez, *Program Administrative Assistant (100%)*

Claudia Gironza, *Program Executive Assistant (100%)*

Freddy Escobar, *Assistant (40%)*

Consultant

Ann Braun, PhD in Ecology
 Facilitator, PNRM-Working Group
 Also, Coordinator, Development of the PRGA Program Web site

Ann Braun, *PhD in Ecology (University of California)*

Ann supports R&D organizations in the development of creative learning processes. Her professional competencies include facilitation of learning communities, training and mentoring in participatory and user-sensitive approaches for sustainable agriculture and NRM, systematization of experiences and lessons learned, and program evaluation. She has served as facilitator for the PRGA Program's PNRM-Working Group since 2000, and coordinates the development of the PRGA Program's Web site. Ann has worked for the CGIAR system in Southeast Asia and Latin America as an agricultural ecologist and in the development of PR methods.

Appendix 6

The Workshop on the "Quality of Science in Participatory Plant Breeding"

Background

This workshop stems from a recommendation made by the panel of the Systemwide Review of Plant Breeding Methodologies to the CGIAR Technical Advisory Committee in October 2000. The panel suggested that participatory plant breeding (PPB) be considered as among the core breeding strategies within the CGIAR and that a debate and consolidation of PPB approaches take place within the CGIAR and among its key partners.

Broad themes identified by the Organizing Committee as key to moving PPB forward

The workshop's Organizing Committee identified six themes by which to realize the recommendation made to CGIAR-TAC:

- I. How to conduct rigorous and predictive diagnoses and priority setting with farmers in PPB (at various scales)
- II. How to construct research design and analyze results in PPB so that researchers' needs are balanced with farmers' needs (i.e., how to carry out the research, and what it means)
- III. How to compare the impact of classic versus participatory PB, as well as compare the differing impact of various types of PPB
- IV. How to shape PPB-conducive R&D policy (what can be done, what cannot be done, institutionalization)
- V. Putting PPB in a more holistic and integrative context to promote increased production and systems sustainability
- VI. Considering future horizons as focusing on biotechnology and PPB

Priority setting

Joint priority setting was judged as a continuing weak point in PPB methodology, and emphasis was placed on the need to start the process in which the "goals" (e.g., higher production, production and diversity enhancement, skill building) are jointly set, and to negotiate carefully between biological and social goals.

Participatory methods working at multiple scales need to be explored more systematically. Also debated was whether local methods can be scaled

up or if very different ones must be used for priority setting at larger scales.

On-farm testing and evaluation

In PPB, the workshop participants deemed as essential that trial design be agreed upon by all partners and that it is interpretable by all partners. Trial designs take very different forms and structures according to breeding goal, agroecological system, and socioeconomic conditions. Numerous choices are available and flexibility is wide.

For evaluation at all stages, it is essential to use primarily farmers' criteria for evaluation, and add other criteria in consultation with them. Initial research may be needed to determine these key criteria. Determining the possibly differing needs of different stakeholders (ethnic groups, women, poor farmers) may be essential for success.

Scaling up

A prime issue was raised of whether scaling up PPB should be primarily supply-driven (policy or project-led) or demand driven (stakeholder-led). In terms of the latter, the following conditions would be favorable to demand-driven scaling up: systematic work with Farmer Research Committees, channeling part of the research funds through FRCs, or facilitating ways for PPB products to better reach the market.

Many approaches are being tested or implemented for scaling up PPB, including through capacity building of NARS, setting up regional agricultural network alliances, developing partnerships with Farmer Field Schools, and contacting farmer-led breeding clubs.

In terms of having wider impact, the workshop participants stressed the critical need to document more clearly the complementarities between conventional and participatory plant breeding.

Impact

Two of the first comprehensive analyses of the impact of PPB programs were presented: for rice and maize in India (DFID, Plant Science-led) and for barley in Syria (ICARDA).

To enhance impact, the workshop participants agreed that much more work must be done, and attention should be given to developing seed systems that are compatible with specific PPB program strategies, and are able to maintain production and distribute widely and rapidly.

Shaping development policy: IPRs

Given the vagueness of international and many national laws on what might constitute "joint products" in the absence of formal contracts (breeding products, written products, as well as innovations), the workshop participants supported the development of a Code of Conduct to (a) recognize the contributions of various

partners, (b) promote “fair practice”, and (c) ensure broad access to products and processes emerging from PPB collaboration.

The workshop participants were recommended to not only improve their own practice (e.g., immediately consider joint authorship more broadly), but also to work at the legislative level to influence law development from discriminating against, or not recognizing, products emerging from various stakeholder collaborative efforts.

PPB and diversity approaches

More than 10 different methods were identified as already in use to link PPB and diversity concerns

More systematic linking of *ex situ* and on-farm work was stressed, and several test cases were sketched. These included ideas to link up networks of plant genetic resources and PPB/crop improvement in (1) West Africa/Sahel, to look at diversity and support local seed systems for millets and sorghums; (2) Uganda, to address concerns of cassava varietal narrowing (and lack of CMV resistance); (3) western Kenya, to counteract the decline in bean production due to the prevalence of root rots; and (4) Rajasthan, India, to recreate the varietal needs the very poor farmers have of their local crops.

PPB and biotechnology

The few practical examples presented focused on linking molecular markers to farmer-preferred traits, and tissue culture for more rapid micropropagation at the community level.

Action plans

Finally, the workshop participants outlined an explicit agenda for action on “Priority Areas in PPB”. Interestingly, this agenda is very different from the one outlined by the core of this workshop 5 years ago (in the base document for the PRGA Program—see the PBG page on the PRGA Program’s Web site). Moving beyond precise technical and social breeding concerns, the workshop this time expressed the need to *maintain and strengthen a critical mass of PPB researchers to ensure scientific credibility*. In this vein, three concerns for action were emphasized:

Broader development of training materials (e.g., university courses and, equally, enhancing the skills of farmers and farming communities in breeding and seed management).

Influencing policies and policy change, with work particularly directed toward seed policy and regulatory reform to ensure that PPB products actually reach the intended end users.

Strategies for capturing (new) finances and building new partnerships. Substantial efforts are to be made to expand the use of PPB across time and space per se (e.g., through alliances with regional agricultural networks and educational institutions), and particularly to expand its breadth of inquiry to include new crops, to extend beyond breeding to an inclusive seed system and marketing focus, and to embed the work in a more holistic context of farming systems, genetic diversity, and NRM.

The very high quality of formal presentations, the working group recommendations on precisely how to move the science forward, and the strategic action plans on the “crucial next steps” go beyond the analyses of technical and social aspects of PPB per se. These elements themselves attest to how fast and far the scope of PPB has been expanding in the last 5-10 years. The issues no longer focus simply on “how to” or “does it work”, but also on how we can design and implement PPB to ensure that the process and its benefits can be expanded more widely for a still greater, positive effect.

The full workshop proceedings is available on the PRGA Program and SGRP Web sites <www.prgaprogram.org> and <www.sgrp.cgiar.org>

Organizing Committee

The workshop's Organizing Committee selected the most compelling “key themes”, screened abstracts, and finalized the workshop's program. Committee members were:

ASHBY, Jacqueline, CIAT/PRGA Program
ATLIN, Gary, IRRI
CECCARELLI, Salvatore, ICARDA
GONÇALVES, Wania Fukuda Maria, EMBRAPA
GURUNG, Barun, CIAT/PRGA Program
HARRINGTON, Larry, CIMMYT
JIGGINS, Janice, independent
LANCON, Jacques, CIRAD
ORTIZ, Rodomiro, IITA
SPERLING, Louise, CIAT/PRGA Program
STHAPIT, Bhuwon, IPGRI
TOLL, Jane, IPGRI/SGRP
VERNOOY, Ronnie, IDRC (advisor)
WELTZIEN-RATTUNDE, Eva, ICRISAT

A vital product of this workshop was the joint work that was accomplished during the meeting itself. The productive interchange was greatly enhanced by the skills of two facilitators, Ronnie Vernooy (IDRC) and Janice Jiggins (independent), who led the workshop participants through a reflection of what might be better accomplished collectively or in subgroups, why, for whom, and how.

Finally, we would like to mention Joachim Voss, Director General of CIAT, Acting Chair of the PRGA Program, and a former PPB practitioner himself. He continues to push for PPB work to take a more “holistic” perspective—not just to fully embrace the notion of diversity, but also to unfold consciously within a more integrated NRM perspective. Similarly, Geoffrey Hawtin, former Director General of IPGRI, maintains that crop and variety diversity remain vital, and relevant only through their active, creative, and evolving use. Both have promoted vigorous user perspectives in research and for research to anticipate dynamic and holistic development needs.

Appendix 7

Results of Consultations by Members of the Participatory Plant Breeding Working Group

In August 2002, the PRGA Program's Coordination initiated a consultation process with the PBG about future directions.

Eastern Africa

P. M. Kimani

I sent five questions to 17 scientists in seven countries in eastern, central, and southern Africa who have active PPB programs. Here is a synthesis of their comments. The questions were slightly modified to reflect the regional situation and are reproduced below, together with the summarized responses from our collaborators:

Question 1.

What are your initial reactions to the 2003-2007 log frame for the PRGA Program (attached)? Are there areas where you have questions or need further clarification? Are there particular items for which you wish to express support or raise concerns? How well does the proposed program respond to the needs of our region?

Some felt the draft log frame was commendable and well articulated, especially outputs 1, 2, and 3. For output 4, respondents wondered why women were targeted exclusively, when our clients—the resource-poor farmers—are both male and female.

Some were not sure what PRGA was. Many knew about PPB but could not link it with PRGA. The implication is that more needs to be done in this region to create awareness of this issue.

Question 2.

How do you think the PRGA working group should move forward? Do you feel that the interests of this region have been adequately addressed? Which specific areas do you think require more attention?

The general view was that NARS should be more involved in developing and implementing the programs. That is, a “bottoms-up” approach would be preferred, from regional to global. No suggestion was made on whether the PNRM-wg and PBG should remain apart or work more closely. Perhaps, few in this region can tell them apart.

Question 3.

What do you consider as the top three issues the PPB working group should focus on over the next three years? Why? What working group initiatives might best address these issues? What suggestions do you have to acquire the necessary funding to support them?

For this region, three issues were raised:

How should PPB be organized so that it is decentralized to stimulate innovation on a large scale? (The comment was made that existing partners and/or small-scale innovation units have to be stimulated by new partners.)

How should we work on crops through PPB when these are not the major foci of NARS? Farmers have a much wider repertoire of crops than can be addressed through the formal-sector mandates. Can NARS play a key role in farmer-led efforts?

How to devise seed systems that can (i) handle the diversity of PPB products, and (ii) move them widely and specifically to the poor.

Question 4.

What ideas and suggestions do you have about how the PBG and listserv should be facilitated in the future?

The listserv has worked well so far. In this region, however, there is a need to broaden its "reach". In some cases, hard copies of documents have to be made for practitioners who do not have access to the Web.

Question 5.

Any other suggestions on how PPB work should be conducted in our region and how it should be linked to the global program?

Several issues were raised by participants in a recent (May 2003) PPB training workshop in Kakamega (Kenya):

Most participants felt a need for training in PPB procedures, including terminology and principles.

Participants felt that they were not sure of methods for analyzing data collected from their trials. Regional training and follow up would be very helpful.

The PRGA Program should stimulate the development of collaborative research projects for this region

Results of previous consultations

Didier Bazile

Question 1.

What are your initial reactions to the 2003-2007 log frame for the PRGA Program (attached)? Are there areas where you have questions or need further clarification? Are there particular items for which you wish to express support or raise concerns? How well does the proposed program respond to the needs of our region?

Methodologies and concepts should be developed to link plant breeding (PB), and crop and natural resource management (NRM). PBG members should be given access to CGIAR publications and an opportunity contribute to specific workshop proceedings with NGOs. Although the gender approach does not need to have specifications everywhere, clarifying why gender must be considered in participatory studies is essential.

Question 2.

Referring to the summary of the PRGA Program's Working Group Consultations held last year: (a) What do you see as being the major implications of the responses received for how the group should move forward? (b) Do they imply any changes for how the group is organized, managed, or functioning? If so, how?

The PNRM-wg must be within the PBG to better diffuse our concepts.

Question 3.

What do you see as being the top three issues that the PBG should focus on for the next three years? Why? What WG activities might best address these issues? What suggestions do you have for acquiring the necessary funding to support them?

More publications with CGIAR centers for an adequate diffusion of research results

Follow a specific way of organizing workshops with NGOs and publish the proceedings to demonstrate linkage between research and development with PPB and PNRM.

PBG members should receive opportunities to write new projects.

Question 4.

What ideas and suggestions you have on how the PBG and listserv should be facilitated in the future?

The PNRM-wg must be within the PBG to better diffuse our concepts.

Appendix 8

Book Summary

Copies of the following book have been distributed to all members of the PNRM-wg.

Book's title:

Managing Natural Resources for Sustainable Livelihoods: Uniting Science and Participation

Chapters:

Uniting science and participation in the process of innovation: research for development
Navigating complexity, diversity and dynamism: reflections on research for natural resource management

Whose research, whose agenda? Scaling up and out

Transforming institutions to achieve innovation in research and development

Principles for good practice in participatory research: reflecting on lessons from the field.

Participatory research, natural resource management and rural transformation: more lessons from the field

Participation in context: what's past, what's present, and what's next

Case study appendices:

Participatory Agro-ecosystem Management – An Approach Used by Benchmark Location Research Teams in the African Highlands Initiative Eco-regional Programme

Participatory Action Research on Adaptive Collaborative Management of Community Forests: A Multi-country Model

The Farmer-driven Landcare Movement: An Institutional Innovation with Implications for Extension and Research

The Farmer Research Group (CIAL) as a Community-Based Natural Resource Management Organization

Long-term Natural Resource Management Research in Intensive Production Systems: ICARDA's Experience in Egypt
Management of Plant Genetic Resources in agro-ecosystems: In Situ Conservation On-farm
Eastern Himalayan Initiative on Gender, Ethnicity and Agrobiodiversity Management
Participatory Selection and Strategic Use of Multipurpose Forages in Hillsides of Central America
Focus on Integrating Methods and Approaches to Increase Gender/Stakeholder Involvement, Collaborative Management of Natural Resource Management, and Decision-making Support
Farmer Participatory Experiments in Pest Management
Farmers' Ability to Manage a Devastating Plant Disease – Potato Late Blight
*Developing and Implementing an Innovative Community Approach to the Control of Bacterial Wilt (*Pseudomonas solanacearum*) of Potatoes (*Solanum tuberosum*)*
Participatory Management of Kapuwai's Wetland (Pallisa District, Uganda): A Clear Need and Some Steps Towards Fulfilling It
Participatory Research at the Landscape Level: The Kumbhan Water Trough Case
Participatory research at landscape level: flood-prone ecosystems in Bangladesh and Vietnam
Water Management, Agricultural Development and Poverty Eradication in the Former Homelands of South Africa
Innovation in Irrigation – Working in a "Participation Complex"
Methods Used to Address Resource Issues in Integrated Watershed Management in Nepalese Watersheds
A Comparison of Farmer Participatory Research Methods
Soil and Water Conservation – Historical and Geographical Perspectives on Participation
Improving Farmers' Risk Management Strategies for Resourcepoor and Drought-prone Farming Systems in Southern Africa
Participatory Mapping, Analysis and Monitoring of the Natural Resource Base in Small Watersheds: Insights from Nicaragua
Observations on the Use of Information Tools in Participatory Contexts: Access to Information and Empowerment

Authors and editors (*):

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 McDOUGALL, Cynthia*
 POUND, Barry*

ROCHELEAU, Diane
 SNAPP, Sieglinde*
 STROUD, Ann
 SUTHERLAND, Alistair
 VERNOOY, Ronnie
 VINCENT, Linden

Appendix 9

Forum for Agricultural Research in Africa (FARA): Workshop Evaluation and Closure

The workshop was closed with two speeches: one from Joseph Mukiibi and the other from Francis Idachaba.

The table groups were also given the task to evaluate the workshop in their groups, with each table responding to 5 questions, listed below, with one or more statements:

Question 1:

If back at home someone asks me to explain in 1 sentence what this program is all about, I would say ...

Use of INRM in partnership to do things differently
Integration
CP is about R&D in INRM in SSA
Food security and alleviation of poverty in Africa

Question 2:

In my opinion, the biggest threat to this SSA-CP is ...

In effective management of partners because of the size of the program
Self interest of groups may derail the CP
Complexity of the CP
Lack of ownership
Change on how R&D is done in Africa
High transaction cost
Politics, size, complexity
Lost in complexity

Question 3:

In my opinion, the biggest opportunity is ...

Smart partnership
Offers to lift people out of poverty in conceived
Bring multiple stakeholders
Good policy and funding
Ownership by those involved
Renewed interest in SSA by donor community
New way of doing things
Donors are receptive to Africa-owned projects

Question 4:

What I liked about this workshop is ...

Good facilitation process
Active brain storming
Networking at continental level
Discussion
Active participation and interaction
Table discussions
Enough fun
Organization of the workshop
Positive attitude of participants

Question 5:

What I did not like about this workshop is ...

Project planning too much research driven
Not enough farmer participation
Pre-empted focus
In not careful, we can derail the whole project

Many hidden agendas
Some break-out groups were too large
Poor representation of stakeholders

Appendix 10

Member List of the Gender Analysis Working Group

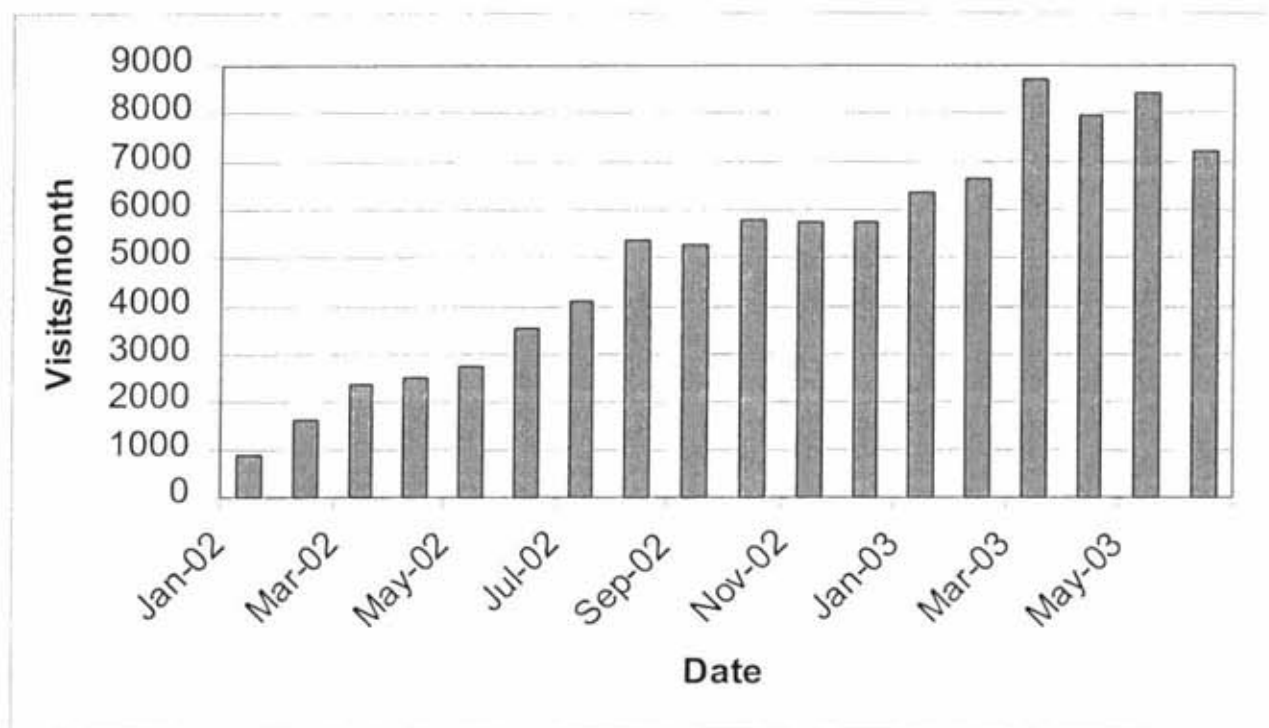
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Appendix 11

Traffic on the PRGA Program's Web Site

Figure elements Visits per month

Year 2002-2003



Appendix 12

Spotlight on Africa

Africa's vision of agriculture in 2020

Agriculture is the engine for improved rural livelihoods and economic development in sub-Saharan Africa (SSA). Recognizing this, African political leaders have positioned agriculture at the center of their new vision for the continent's future. In full support of this vision, the SSA agricultural R&D community has called for regional agricultural production to grow at an annual rate of 6% through 2020. The African vision for agricultural R&D envisages that by 2020, the region should:

- Have dynamic agricultural markets among nations and between regions
- Be a net exporter of agricultural products
- Have food availability and affordability, with equitable distribution of wealth
- Be a strategic player in agricultural science and technology development
- Have a culture of sustainable use of the natural resource base.

The targeted level of agricultural growth cannot be achieved without a focused and market-driven system of technology development and transfer, an enabling policy environment, and effective institutions. The following initiatives are part of this new vision for sub-Saharan Africa.

The New Partnership for Africa's Development (NEPAD)

NEPAD is a pledge by African leaders, based on a common vision. It expresses a firm and shared conviction that they have a pressing duty to eradicate poverty and to place their countries, both individually and collectively, on a path of sustainable growth and development while participating actively in the world economy and body politic.

The program is anchored on the Africans' determination to extricate themselves and the continent from the malaise of underdevelopment and exclusion in a globalizing world.

Subregional organizations

The agricultural R&D community of sub-Saharan Africa recognizes that effective and broadened partnerships, with the NARS playing a central role, are essential. African countries have made considerable efforts over the past decades to develop a solid baseline in research infrastructure. To harness these resources, the NARS have taken the initiative toward reforming themselves for greater accountability, fiscal stability, and impact. They have also strengthened regional collaboration through the formation and development of three subregional organizations (SROs).

The Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA) is a non-political organization of the national agricultural research institutes (NARIs) of 10 countries: Burundi, D. R. Congo, Eritrea, Ethiopia, Kenya, Madagascar, Rwanda, Sudan, Tanzania, and Uganda. It aims at increasing the efficiency of agricultural research in the region to facilitate economic growth, food security, and export competitiveness through productive and sustainable agriculture.

Le Conseil Ouest et Centre Africain pour la Recherche et le Développement Agricoles (CORAF) was created in 1987 by the national agricultural research systems

(NARS) of West and Central Africa, Madagascar, and the French ARIs (CIRAD, IRD, and INRA). CORAF's objective is to reinforce regional scientific cooperation of its member countries without substituting for national agricultural research capabilities. The following countries constitute its membership: Benin, Burkina Faso, Burundi, Cameroon, Cape Verde, Central African Republic, Chad, D. R. Congo, Rep. of Congo, Côte d'Ivoire, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Madagascar, Mali, Mauritania, Niger, Rwanda, Senegal, Sierra Leone, and Togo.

The Southern African Centre for Co-operation in Agricultural and Natural Resources Research and Training (SACCAR). Established in 1984, SACCAR has the objective of strengthening the NARS in member countries so they may generate, disseminate, and promote new technology through inter-country liaison and regional collaborative projects. Other objectives relate to promoting the dissemination of scientific information, and to promote, through training, human resources development, thus strengthening the capacity of research and training institutions. Member countries are Angola, Botswana, Lesotho, Malawi, Mauritius, Mozambique, Namibia, South Africa, Swaziland, Tanzania, Zambia, and Zimbabwe.

The Forum for Agricultural Research in Africa (FARA), an apex body recently created by the SROs, is spearheading the development of a pre-proposal for a CGIAR Challenge Program on *Improving Livelihoods and Natural Resource Management in sub-Saharan Africa*. This Challenge Program will be concerned with the way people use natural resources to support livelihoods and will address the most fundamental constraint to African agriculture—poor soil fertility—by applying a new paradigm for integrated natural resource management (INRM), and by applying it with all partners committed to jointly identifying and resolving problems with the full participation of the beneficiaries. It will employ a new mode of competitive funding that will enable the formation of new partnerships of NARES, the CGIAR centers, ARIs, NGOs, farmer organizations, and private enterprise, to address problems by means of targeted and time-bound research projects with clear objectives and deliverables.

The CGIAR and Africa's new vision for agricultural research and development

Multi-country Agricultural Productivity Program for Africa (MAPP). A pillar of the NEPAD framework is the systematic application of agricultural science and technology to enhance African agricultural productivity and competitiveness. A comprehensive program to achieve this goal was developed by FARA and endorsed by NEPAD. To contribute toward implementing the FARA program, the World Bank has formulated a Multi-Country Agricultural Productivity Program (MAPP) for Africa. This proposal has important implications for CGIAR, which is seen as contributing further to the enhancement of technology generation and transfer in Africa.

African Highland Initiative (AHI). AHI's research focuses on key NRM and agricultural productivity issues in the intensively cultivated highlands of eastern and central Africa. Concerned NARIs, IARCs, and various NGOs are collaborating to improve R&D approaches and set up partnerships to develop and institutionalize effective and efficient approaches for sustainable INRM and enhanced productivity. The AHI was started by ASARECA in 1995 and is now hosted by ICRAF. The Initiative is promoting integrated, interinstitutional, R&D efforts with strong community participation to solve critical issues of soil productivity, water, and land use. AHI's mandate and role in the ASARECA portfolio is to develop, promote, and use an INRM approach for improving development strategies, practices, and policies.

The CGIAR Systemwide Initiative on Malaria and Agriculture (SIMA) brings together malaria research, agricultural research, and targeted communities to find solutions to the malaria problem. Five specific outputs have been formulated for SIMA. These are providing a knowledge base, building capacity, developing interventions, increasing awareness, and building an international malaria network.

Funding is now available for SIMA projects that are based on ecosystem approaches to human health. These funds were made available by IDRC and IWMI to support research, capacity building, and knowledge sharing, using ecosystem approaches, to reduce malaria and improve health and well-being in countries of eastern and southern Africa.

The Africa 2020 Vision Network seeks to reduce poverty and improve food security in East Africa by generating policy-relevant information through collaborative research activities, improving the dissemination and use of such information, and strengthening local capacity to undertake and communicate policy research. The Network encompasses Ethiopia, Kenya, Malawi, Mozambique, Tanzania, and Uganda.

The Desert Margin Program (DMP). The Program aims to arrest land degradation in Africa's desert margins by demonstration and capacity-building activities. Funds received from the Global Environment Facility (GEF) will help DMP address issues of global and national environmental and economic importance, such as loss of biological diversity, reduced carbon sequestration, and increased soil erosion and sedimentation. Key sites carrying globally significant ecosystems and threatened biodiversity have been selected in each of the nine member countries to serve as field laboratories for demonstration activities related to monitoring and evaluating biodiversity status, testing the most promising natural resources options, developing sustainable alternative livelihoods and policy guidelines, and replicating successful models.

The DMP will significantly contribute to reducing land degradation in marginal areas and conserving biodiversity. Guidelines and recommendations domains, and supportive national policies that address biodiversity concerns will be implemented in the member countries. DMP's executing agencies are ICRISAT and the NARS of Botswana, Burkina Faso, Kenya, Mali, Namibia, Niger, Senegal, Rep. of South Africa, and Zimbabwe.

Appendix 13

"The Web Site of the Week"

Many of the following Web sites were recommended by members of the PNRM-wg. Listed in alphabetical order, they are as follows:

The Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA)

A non-political organization of the NARIs of 10 countries: Burundi, D. R. Congo, Eritrea, Ethiopia, Kenya, Madagascar, Rwanda, Sudan, Tanzania, and Uganda. It aims to increase the efficiency of agricultural research in the region to facilitate economic growth, food security, and export competitiveness through productive and sustainable agriculture.

The Caribbean Natural Resources Institute (CANARI)

Promoting participatory NRM in the Caribbean, CANARI seeks to create avenues for the equitable participation and effective collaboration of Caribbean communities and institutions in managing the use of natural resources critical to development.

Choike

A portal (English and Spanish) dedicated to improving the visibility of work done by NGOs from the South. It serves as a platform where NGOs can disseminate their work and, at the same time, enrich it with information from diverse sources, organized in line with the perspective of South's civil society.

Community Based Natural Resource Management in Southern Africa (CBNRM)

The Centre for Applied Social Sciences (CASS) at the University of Zimbabwe and the Programme for Land and Agrarian Studies (PLAAS) at the School of Government, University of the Western Cape have launched a 3-year program of analysis and communication to build their existing, mostly national, activities into an integrated regional commitment to community based NRM, the indigenous framework for rural production in southern Africa.

The Earth Negotiations Bulletin

A balanced, timely, and independent reporting service that provides daily information in print and electronic formats from multilateral negotiations on environment and development. Published by the International Institute for Sustainable Development (IISD), the *Bulletin* is a one-page, two-sided "desktop" publication that is distributed daily to participants of UN negotiations related to environment and development. The *Bulletin* is also available in electronic format on IISD's "Linkages" Web site on the Internet and by electronic mail. At the conclusion of each meeting, the *Bulletin's* team writes and edits a 10,000-18,000-word summary and analysis of the meeting. In electronic format, it can reach a wide range of people interested in environment and development negotiations. It also acts as an important source of information on updates of the Convention on Biological Diversity.

European Forum on Rural Development Cooperation

Tackles policies and approaches for reducing rural poverty. The meeting on "What works in practice?", held in Agropolis, Montpellier, France, 4-6 September 2002, was an event for policymakers and practitioners from the European Development Cooperation Agencies who work to reduce poverty in developing countries.

FAO Participation Web Site

A place for studying and discussing participation in development. The site is offered by the Informal Working Group on Participatory Approaches and Methods to Support Sustainable Livelihoods & Food Security (IWG-PA) of the Food and Agriculture Organization of the United Nations (FAO).

Forum for Qualitative Social Research (FQS)

A peer-reviewed, multilingual, online journal for qualitative research. Established in 1999, the journal is currently broadening information and communication resources for qualitative researchers.

Fusion of Horizons

An electronic exhibition by Mohan Dhamotharan and Thomas Becker of the University of Hohenheim. They offer a downloadable collection of posters about communication skills for participatory research.

Gender and Water Alliance

A network of 133 organizations and individuals from around the world. It has an independent steering committee, and is an associated program of the Global Water Partnership (GWP), funded by the governments of the Netherlands and UK. Because of the pooled experience and skills contained in this network, the GWP offers a mix of information and knowledge sharing activities such as electronic conferencing, a Web site, advocacy leaflets and video, annual reports, capacity building, and pilot programs.

Global Forum on Agricultural Research (GFAR)

A multi-stakeholder initiative that contributes to eradicating poverty, achieving food security, and conserving and managing natural resources. It enhances national capacities to generate, adapt, and transfer knowledge (recommended by Helen Hamblly, NRM Document Repository, GFAR).

id21 Insights

Issue 34 is a special issue on social capital. Articles include:

It's not what you know- it's who you know! Economic analysis of social capital
Friends in high places? An overview of social capital
Pathways of influence - social capital and household welfare in South Africa
Preferential credit? Ethnic and indigenous firms vie for equal access
Choosing better technology: does social capital help?
Networking for success and survival in Ghana: does size matter?
Unequal access to social capital? Evidence from Tanzania
Sites for Sore Eyes: Online Sources on Social Capital

infed.org

Established in 1995, this home page of "Informal Education" provides a space for people to explore the theory and practice of informal education and to develop ways of working and being that foster association, conversation, and relationship. The site features an encyclopedia of informal education with over 300 articles that explore key ideas, thinkers, and practices within informal education and lifelong learning.

Institute of Development Studies (IDS) Info Services

A portal to:

BLDS: online catalog of Europe's largest library on international development
BRIDGE: information and analysis service on development and gender
ELDIS: the gateway to development information
GDN: the Global Development Network links local development research and policy development organizations

Keysheets for Sustainable Livelihoods

Keysheets provides decision makers with a short, easy, and up-to-date reference on issues relating to sustainable livelihoods and infrastructure development for the poor. The Overseas Development Institute (ODI) produces *Keysheets* for DFID and the Netherlands Ministry of Foreign Affairs.

Landcare Research/Manaaki Whenua New Zealand

Also known as “Collaborative Learning for Environmental Management”, this Web site records social research on improving the quality of environmental management decision making.

LIFE: Local Livestock For Empowerment of Rural People

This movement supports rural communities through the conservation and development of their indigenous livestock breeds and species.

Makerere Institute of Social Research (MISR)

Previously known as the East African Institute of Social Research, MISR was established in 1948 and mandated to carry out anthropological and other forms of social research. MISR is now an autonomous institute of Makerere University. It conducts and coordinates basic and applied research; provides consultancy services to private, public, and NGO sectors; undertakes global networking with related institutions; develops and maintains a regional data bank and disseminates information. Over the years, MISR has built a reputation for attracting local and international scholars, and for its interdisciplinary work, both conducted and published under its auspices.

MekongInfo

An interactive system for sharing information and knowledge about participatory NRM in the Lower Mekong Basin. The services offered include a library holding over 2600 documents, both full texts and abstracts; a “contacts” database of individuals, projects, and organizations; news and announcements of events; relevant Web links; a gallery of useful resource materials; a forum for online discussions; and a free Web hosting service.

National Strategies for Sustainable Development

Provides tools to assist in promoting dialogue on national strategies for sustainable development and providing necessary background information and reference material to support these dialogues. Its overall objectives are to:

- Improve international understanding of the key challenges and modalities for developing and implementing effective national strategies for sustainable development (NSSDs)

- Elaborate “best practices” for donors assisting developing countries with the formulation and implementation of NSSDs

- Inform of bilateral donor responses to developing country requests for support in NSSD processes

Participatory Avenues

Aims to share significant progress in visualizing people’s spatial knowledge (cognitive maps) and in providing communities additional stakes in tailoring and owning

conservation and development initiatives. Participatory 3-Dimensional Modeling is promoted as the “best practice”.

Partnership in Statistics for Development in the 21st Century (PARIS21)

A new international process set up by a global consortium of policy makers, statisticians, and users of statistical information in support of development. PARIS21 aims to build statistical capacity as the foundation for effective development policies by helping to develop well-managed statistical systems that are appropriately resourced. In the longer term, PARIS21 aims to help promote a culture of evidence-based policy making and monitoring in all countries, but especially in poor developing countries.

People, Land and Water: an Initiative for Managing Natural Resources in Africa and the Middle East

The mission of the People, Land and Water (PLaW) Program Initiative is to contribute toward improving the quality of life of people living in stressed ecoregions of Africa and the Middle East (AME) through activities that improve access to, and encourage proper use, of land and water resources, and, hence, ensure food and water security. Visit the Web site to learn about the specific objectives and projects of PLaW.

Population-Environment Research Network (PERN)

Seeks to advance academic research on population and the environment by promoting online scientific exchange among researchers from social and natural science disciplines worldwide. The Network’s main activities include:

- A resource database of gray literature, publications, projects, conferences, datasets, software, course syllabi, and other resources for research on population-environment dynamics
- Regular cyber-seminars to discuss articles, methods, and issues in population and environment research
- A biweekly *What’s New?*, a newsletter that announces events, opportunities, jobs, publications, and new titles added to the resource database

Power Tools Series

Used for working on policies and institutions, and to help provide practical help for those working to improve the policies and institutions that affect the lives of poor people. The series is being developed by the International Institute for Environment and Development (IIED) from experience in working on policies and institutions in various fields of environment and development.

Promoting Local Innovation (PROLINNOVA)

NGOs in Africa, Asia, Latin America, and Europe conceived PROLINNOVA as a global program for learning through action and analysis. The focus is on ways to promote local people’s innovation in ecologically oriented agriculture and NRM. Activities include:

- Documenting local innovations and innovative processes by resource-poor farmers and communities
- Strengthening farmer-advisor-scientist partnerships to further develop and scale up promising local innovations
- Creating wider awareness of and skills in PROLINNOVA processes through a variety of learning mechanisms

Integrating PROLINNOVA approaches into mainstream institutions of agricultural research, development, and education

The Royal Tropical Institute (KIT) Specials

The Web site of this Netherlands institution has a section entitled "Specials", with each *Special* dealing with a different issue. The *Special for Gender & Natural Resources Management* was published in conjunction with the book *Natural Resources Management and Gender*, the sixth of the series on *Gender, Society & Development*. The *Special* covers:

Guest contributions, which are case studies by development practitioners and experts
Bibliography, containing selected, recent references of full-text publications found in print in the KIT Library and online on the Internet

Tools & methods: documents on practical instruments, manuals, and guides for working with GA and NRM

Links to relevant organizations and Web sites

News & events, covering news items and announcements of conferences, courses, and other events

Smallholder Irrigation Market Initiative (SIMI)

The many efforts to disseminate promising irrigation technologies have been limited, not so much by technology and its use, but by the need for complementary interventions from a range of players with different competencies, and for competence and experience in facilitating market creation and development of supply chains. Development initiatives aiming to enable their partners and clients to make use of the potentials of low-cost, smallholder, irrigation technologies may not have all the skills, know-how, and resources to engage in such long-term processes. Thus, they need to link up with people and organizations who do have the relevant know-how and experience so they may take up complementary roles in the development of supply chains. SIMI was set up in response to these challenges. The Initiative's objectives are to foster the spread of:

Smallholder irrigation technologies to the many people to whom they offer an opportunity of a better livelihood

Technologies that allow a more efficient use of irrigation water

Soil Biodiversity Portal

This Web site offers general concepts on the meaning and significance of soil biodiversity, stressing the need for integrated biological soil management. It provides a framework for assessing, managing, and conserving soil biodiversity, giving examples of successful and unsuccessful practices from various regions of the world. Areas for further work, research, capacity building, and policy and program development are indicated.

Soil Productivity Improvement through Farmer Field Schools (SPI-FFS)

This Web site provides information on FAO's pilot program of the same name. Specifically, the site aims to promote the exchange of information and experiences on the development and implementation of FFS to enhance and sustain soil productivity. It targets those involved in developing participatory or FFS land management and conservation programs, resource persons, senior extension officers, and agricultural development specialists. The Web site covers the SPI-FFS Program's:

Objectives, including concepts and approaches
Training activities, which focus mainly on developing materials and curriculums, and capacity building
Activities for developing national and regional support programs, projects, and other focal points of research in eastern and southern Africa
Dissemination of documents, including background information, guidelines, and training materials that can be downloaded

Sustainable Development Issues Network for 2002

A collaborative effort among civil society networks and nongovernmental issue caucuses that aim to improve communications and access to information on sustainable development issues. In particular, the initiative aims to improve communications among NGOs engaging in the World Summit on Sustainable Development.

Sustainable Rural Development Information System (SRDIS)

A specialized online library of Internet-based resources. The objective is to identify and organize those information resources most useful to resolving rural issues of global, national, and local importance. Relevant Internet sites, case studies, databases, maps, newsletters, and reports are cataloged for precision search and retrieval. Current SRDIS foci include decentralization, local development, and NRM. Topical areas to be developed over time include NRM, institutions, empowerment and governance, food security, and information access and communications.

Technical Centre for Agricultural and Rural Cooperation

Better known by its Dutch acronym, the CTA advances agricultural and rural development in African, Caribbean, and Pacific (ACP) countries by promoting the transfer, exchange, and use of information. CTA's tasks are to develop and provide services that improve access to information for agricultural and rural development and to strengthen the capacity of ACP countries to produce, acquire, exchange, and use information in these areas (recommended by Helen Hambly, NRM Document Repository, GFAR).

UK Agricultural Biodiversity Coalition (UKabc)

An activity of the UK Food Group to bring together public-interest UK organizations concerned with the equitable use of agricultural biodiversity for local food and livelihood security. Issues of interest include sustainable use, conservation, benefit sharing, trade, patents, intellectual property, biopiracy, biotechnology, genetic engineering, and biosafety.

Users' Perspectives With Agricultural Research and Development (UPWARD)

This network of scientists and development specialists works to increase participation by farmers and other users of agricultural technology in research and development (R&D). Launched in 1989, under the sponsorship of the International Potato Center (CIP), UPWARD seeks to address three important challenges facing agricultural R&D today: linking users and R&D professionals for more effective agricultural innovation; bringing sustained benefits to less-favored farming areas and marginalized groups, especially women; and working with households and local communities as key actors in problem diagnosis and research activities.

What Works in Youth Participation

Case Studies from Around the World is the most recent publication to be released as part of the "What Works in Youth Development" series published by the International Youth Foundation. The document examines the challenges and benefits of engaging young people in meaningful ways in society.

Appendix 14

Terms of Reference for the PRGA Program's Liaison Contacts

Minimum terms

The minimum terms of reference for the PRGA Program's liaison contacts in the CGIAR centers are:

Disseminate information on PRGA to social scientists in the CGIAR center and partner NARS

Forward e-mails from the PRGA Program in a targeted fashion

Inform people, particularly NARS partners and center colleagues, of the existence of the PRGA Program's listserv and Web site, and that they may join the listserv

Issue the simple project inventory form. The liaison officer's role is to request project leaders to provide information on their projects. Such a request may need support from the center's Management. Indicate the added value

Ensure the selection and participation of appropriate people from the center in PRGA Program events.

Participate as the center's liaison representative to the PRGA Program's Advisory Board

Conduct e-mail exchange with other center liaison representatives on the Advisory Board and attend the annual face-to-face and other meetings.

Optional terms

Optional terms of reference for the center liaison contacts are:

Form an internal interest group for information exchange or informal face-to-face meetings

Organize an internal working group to promote and critically assess PRGA in the center (PRGA Program should assist)

Where formal groups acting as change agents do not operate in the center, then other methods may be more appropriate

Organize capacity-building matching funds from the PRGA Program (which must be matched by funds from the center's core budget) and involve other centers as partners

Facilitate joint publications with PRGA Program staff

Conduct mentoring and additional activities

Balance liaison responsibilities with commitments and accountability activities from the PRGA Program

Funding (PRGA Program's contributions)

Choose the center's point person or appointee for liaising for funds from the PRGA Program

Follow up the nominations with interviews to receive their comments on the selection process

A need exists to build up those stipulations in the terms of reference (TORs) referring to the PRGA Program's responsibilities (i.e., develop joint TORs)

Liaison officers (and also extension workers) to have broader participation in contributing to working documents, reviewed publications, and organizing special journal issues. Such activities should be viewed as opportunities for peer review.

The PRGA Program should work with liaison officers to form groups of change agents to institutionalize PRGA and, if need be, to influence the center's Management.

The PRGA Program should be accountable for information on what funds are available and the criteria for their allocation.

Goals of PGM and TORs of liaison contacts should go to the centers' directors general first, not only for them to consider the selection of the liaison officers, but also to ensure that (1) the TORs are integrated into the officers' own TORs, and (2) resources are available.

Competitive capacity-building fund, low transaction costs (short concept note).

Appendix 15

Acronyms and Abbreviations

Organizations

ACIAR	Australian Centre for International Agricultural Research
AFOCO	Apoyo a la Forestaria Comunitaria, Honduras
AHI	African Highland Initiative (<i>of</i> ICRAF)
AREA	Agricultural Research and Extension Authority, Yemen
ASARECA	Association for Strengthening Agricultural Research in Eastern and Central Africa
BMZ	Bundesministerium für Wirtschaftliche Zusammenarbeit (<i>Federal Ministry of Economic Co-operation and Development</i>), Germany
CANARI	Caribbean Natural Resources Institute, Trinidad
CARE	Cooperative for Assistance and Relief Everywhere, Inc., GA, USA
CASS	Centre for Applied Social Sciences (of the University of Zimbabwe)
CAZS	Centre for Arid Zone Studies, Wales, UK
CBN	Cassava Biotechnology Network
CBNRM Net	Community-Based Natural Resource Management Network
CGIAR	Consultative Group on International Agricultural Research
CIAT	Centro Internacional de Agricultura Tropical, based in Colombia
CIAL	Comité de Investigación Agrícola Local [<i>Committee for Local Agricultural Research</i>]
CIDA	Canadian International Development Agency
CIFOR	Centre for International Forestry Research, based in Indonesia
CIMMYT	Centro Internacional para Mejoramiento de Maíz y Trigo, based in Mexico
CIP	Centro Internacional de la Papa, based in Peru
CIRAD	Centre de coopération internationale en recherche agronomique pour le développement, France
CORAF	Conseil Ouest et Centre Africain pour la Recherche et le Développement Agricoles (<i>also</i> WECARD)

CORPOICA	Corporación Colombiana de Investigación Agropecuaria
Corporación PBA	Corporación para el Desarrollo Participativo y Sostenible de los Pequeños Agricultores, Colombia
CTA	Technical Centre for Agricultural and Rural Cooperation, based in the Netherlands
DED	Deutscher Entwicklungsdienst [<i>German Development Service</i>]
DFID	Department for International Development, UK
DGIS	Directorate-General for International Co-operation, Netherlands
DMP	Desert Margins Program, based at ICRISAT
EAP-Zamorano	Escuela Agrícola Panamericana—Zamorano, Honduras
EMBRAPA	Empresa Brasileira de Pesquisa Agropecuária, Brazil
FAO	Food and Agriculture Organization of the United Nations, Italy
FARA	Forum for Agricultural Research in Africa
FIDAR	Fundación para la Investigación y el Desarrollo Agrícola, Colombia
FPR-IPM	Farmer Participatory Research for Integrated Pest Management Project (<i>of the SP-IPM and PRGA Program</i>)
FQS	Forum for Qualitative Social Research (electronic journal)
GA-wg	Gender Analysis Working Group (<i>of the PRGA Program</i>)
G&D Committee	Gender and Diversity Committee (<i>of CIAT</i>)
GDN	Global Development Network
GEF	Global Environment Facility
GFAR	Global Forum on Agricultural Research, based in Italy
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit (<i>German Agency for Technical Cooperation</i>)
GWP	Global Water Partnership
ICARDA	International Center for Agricultural Research in the Dry Areas, based in Syria
ICLARM	International Center for Living Aquatic Resources Management, based in the Philippines
ICRAF	International Centre for Research in Agroforestry, based in Kenya
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics, based in India
IDRC	International Development Research Centre, Canada
IDS	Institute of Development Studies (<i>of the University of Sussex</i>)
IES	Institute of Environmental Studies, Zimbabwe
IFPRI	International Food Policy Research Institute, based in USA
IICA	Instituto Interamericano de Cooperación para la Agricultura, based in Costa Rica
IIED	International Institute for Environment and Development
IIM-A	Indian Institute of Management—Ahmedabad
IIRR	International Institute of Rural Reconstruction, based in the Philippines
IISD	International Institute for Sustainable Development
IITA	International Institute of Tropical Agriculture, based in Nigeria
ILRI	International Livestock Research Institute, based in Kenya
INIAP	Instituto Nacional Autónomo de Investigaciones Agropecuarias, Ecuador

INRA	Institut National de la Recherche Agronomique, France
IPCA	Proyecto de Investigación Participativa en Centroamérica, based in Honduras
IPGRI	International Plant Genetic Resources Institute, based in Italy
IPRA Project	Investigación Participativa en Agricultura/ <i>Participatory Research in Agriculture</i> (of CIAT)
IRD	Institut de Recherche pour le Développement, France
IRRI	International Rice Research Institute, based in the Philippines
ISNAR	International Service for National Agricultural Research, based in the Netherlands
IWG-PA	Informal Working Group on Participatory Approaches and Methods to Support Sustainable Livelihoods & Food Security (of FAO)
IWMI	International Water Management Institute, based in Sri Lanka
JIRCAS	Japan International Research Center for Agricultural Sciences
KIT	Royal Tropical Institute, Netherlands
LI-BIRD	Local Initiatives for Biodiversity, Research and Development, Nepal
MAPP	Multi-country Agricultural Productivity Program for Africa (of the World Bank)
MFAT	Ministry of Foreign Affairs and Trade, New Zealand
MISR	Makerere Institute of Social Research
NARC	Nepal Agricultural Research Council
NARO	National Agricultural Research Organization, Uganda
NEPAD	New Partnership for Africa's Development
NRI	Natural Resources Institute, UK
PARIS21	Partnership in Statistics for Development in the 21st Century
PBG	Participatory Plant Breeding Working Group (of the PRGA Program)
PERN	Population-Environment Research Network
PLAAS	Programme for Land and Agrarian Studies (of University of the Western Cape)
PlaW	People, Land and Water Program Initiative (of IDRC)
PNRM-wg	Participatory Natural Resource Management Working Group of the PRGA
PRGA Program	Participatory Research and Gender Analysis Program
PROINPA	Fundación PROINPA "Promoción e Investigación de Productos Andinos", Bolivia
PROLINNOVA	Promoting Local Innovation
SACCAR	Southern African Centre for Co-operation in Agricultural and Natural Resources Research and Training
SDC	Swiss Agency for Development and Cooperation
SEARICE	Southeast Asia Regional Institute for Community Education, based in the Philippines
SGRP	The CGIAR System-wide Genetic Resources Programme
SIMA	Systemwide Initiative on Malaria and Agriculture (of the CGIAR)
SIMI	Smallholder Irrigation Market Initiative

SIUPA	Strategic Initiative on Urban and Peri-Urban Agriculture (<i>of the CGIAR</i>)
SP-IPM	Systemwide Program on Integrated Pest Management Program (<i>of the CGIAR</i>)
SPI-FFS	Soil Productivity Improvement through Farmer Field Schools (<i>of</i> FAO)
SPIA	Standing Panel on Impact Assessment (<i>of the CGIAR</i>)
SRBLI	Socially Responsible Business Leadership Initiatives (<i>of</i> University of California-Berkeley)
SRDIS	Sustainable Rural Development Information System
SRISTI	Society for Research and Initiatives for Sustainable Technologies and Institutions, India
SSA-CP	Sub-Saharan Africa Challenge Program (<i>of the CGIAR</i>)
SWNM	The CGIAR Systemwide Program on Soil, Water & Nutrient Management
TAC	Technical Advisory Committee (<i>of the CGIAR</i>)
TLAP	Ecoregional Program for Tropical Latin America (<i>of the CGIAR</i>)
UBINIG	Unnayan Bikalper Nitinirdharoni Gobeshona [<i>Policy Research for Development Alternatives</i>], Bangladesh
UKabc	UK Agricultural Biodiversity Coalition (<i>of the UK Food Group</i>)
UPWARD	Users' Perspectives with Agricultural Research and Development (<i>of CIP</i>)
WARDA	West Africa Rice Development Association, Côte d'Ivoire
WECARD	West and Central African Council for Agricultural Research and Development (<i>also CORAF</i>)
WWW	World Wide Web

Other acronyms and abbreviations

ACP	African, Caribbean, and Pacific countries
AGM	annual general meeting
AME	Africa and the Middle East
ARIs	advanced research institutions
CBOs	community-based organizations
CP	challenge programs (<i>of the CGIAR</i>)
FFS	farmer field schools (<i>of</i> FAO)
FRCs	farmer research committees
GA	gender analysis
GO	government organization
GRO	government regional office
HIV/AIDS	human immunodeficiency virus/acquired immunodeficiency syndrome
IA	impact analysis
IARCs	international agricultural research centers
ICER	internally commissioned external review

ICM	integrated crop management
ILAC	institutional learning and change
INRM	integrated natural resources management
IPM	integrated pest management
IPR	intellectual property rights
LOA	letter of agreement
M&E	monitoring and evaluation
NARES	national agricultural research and extension systems
NARIs	national agricultural research institutes
NARS	national agricultural research system
NGOs	nongovernmental organizations
NRM	natural resource management
NSSDs	national strategies for sustainable development
PB	plant breeding
PGR	plant genetic resources
PM&E	participatory monitoring and evaluation
PPB	participatory plant breeding
PNRM	participatory natural resource management
PR	participatory research
PRGA	participatory research and gender analysis
PR/L	participatory research and learning
PVS	participatory variety selection
R&D	research and development
S/GA	social and gender analysis
SP	systemwide program of the CGIAR
SROs	subregional organizations
SSA	sub-Saharan Africa
TORs	terms of reference
wg	working group