

**METHODS OF FARMER PARTICIPATION IN  
RESEARCH AND GENDER ANALYSIS FOR  
TECHNOLOGY DEVELOPMENT**

**CIAT  
PROJECT SN3**



**ANNUAL REPORT 1997**

**CIAT  
AA 6713  
CALI  
COLOMBIA**

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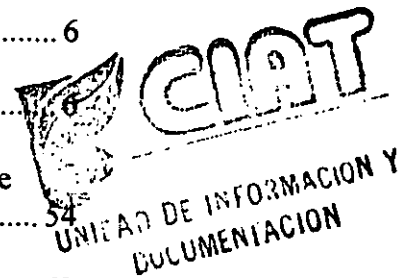
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## **PROJECT SN-3: METHODS OF FARMER PARTICIPATION IN RESEARCH AND GENDER ANALYSIS FOR TECHNOLOGY DEVELOPMENT**

**Objective:** To develop, apply, and disseminate participatory methods and principles of organizational design that improve feedback from end-users of research to scientists at early stages in R&D and that promote a low-cost, sustainable, institutionalization of the approach by NARS.

**Outputs:** Widely applicable methods to involve users in the development of technology for crop production and natural resource management and to develop institutional models for conducting client-oriented research at the farm and landscape levels.

**Gains:** Users will be involved at early stages in decisions about technology design. Methods will be available for incorporating users' preferences. Participatory research will be applied on a routine basis in CIAT programs. At least three major universities in Latin America will have the capacity to teach participatory research methods, including gender analysis. At least 1,000 trainees and 40 trainers will be able to teach these methods in the region. Training materials and methodology will be published and widely disseminated. The contribution of participatory research to rates of technology adoption will be measured in targeted areas. Lessons learned and methodologies will be disseminated worldwide in conjunction with the systemwide program convened by CIAT.

### **Milestones:**

- 1998 Courses offered on methods in at least six countries, with replication of CIAT institutional model. Methods introduced to NARS for plant breeding, IPM, and research management research in at least six countries.
- 1999 At least 40 trainers prepared. Gender-differentiated adoption impact assessed in economic terms. Methods disseminated worldwide.
- 2001 Institutionalization of methods in NARS and CGIAR as widely accepted tools of development-oriented agricultural research, in conjunction with the systemwide program.

**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 end-users about the 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:** Regional training in at least four countries; CONDESAN, PROCIANDINO, NARS, NGOs, universities. National-level training with NARS in at least two other countries; Cornell University (USA), NORAGRIC, University of Guelph (Canada). CGIAR systemwide program members.

**CGIAR system linkages:** Organization and Management (70%); Training (30%). Convenor of Systemwide Program on Participatory Research and Gender Analysis.

**CIAT project linkages:** Provides input to projects PE-3, PE-5, PE-1, IP-1, IP-2, IP-3, and SN-1.

## Project SN-3: Methods of Farmer Participation in Research and Gender Analysis for Technology Development

### Project Purpose

To develop, apply, and disseminate participatory methods and principles of organizational design that would improve feedback from end-users of research to scientists at early stages in R&D and that would promote low-cost, sustainable, institutionalization of the approach by NARS

O u t p u t s	Assessment of acceptability of prototype NRM technology to farmers	Germplasm assessed for acceptability to farmers, using participatory methods in plant breeding	New methodology and institutional models for participatory research in agriculture and NRM	Improved capacity to conduct participatory research and gender analysis
A c t i v i t i e s	<ul style="list-style-type: none"> <li>(1) Link indigenous experimentation with formal research through regular innovator workshops with farmers and other watershed stakeholders on the design of natural resource conservation practices (input to PE-3).</li> <li>(2) Evaluate, with users, the acceptability of component NRM technology and prototype production systems (input to PE-5).</li> <li>(3) Conduct strategic research on methodology development for farmer participation in IPM systems (linked to IPM systemwide initiative and PE-1).</li> <li>(4) Develop methodology for participatory system trials at the landscape scale with groups of stakeholders (input to PE-3).</li> <li>(5) Derive farmers' criteria for acceptability of new components and systems.</li> </ul>	<ul style="list-style-type: none"> <li>(1) Develop participatory plant breeding strategies and improve the quantitative analysis of farmer preference data.</li> <li>(2) Provide methodological support and training for participatory evaluation of genetic resources, breeders' nurseries, segregating populations, and advanced lines (linked to IP-1, IP-2, IP-3, and IP-5).</li> <li>(3) Derive farmers' criteria for acceptability of new germplasm and ensure regular feedback from farmers to plant breeders.</li> </ul>	<ul style="list-style-type: none"> <li>(1) Select and test suitable methods for typologies of users or stakeholders; problem diagnosis goal setting; local-level, participatory monitoring of sustainability indicators; conflict resolution (linked to IP-3 and ecoregional research).</li> <li>(2) Conduct strategic sociological research on the impact of novel organizational models on social capital formation and technical innovation in agriculture and NRM. Determine implications for participatory research (linked to CIAT's IP and PE projects).</li> <li>(3) Develop data collection and analytic methods for linking participatory diagnosis, technology evaluation, and gender analysis to GIS databases to identify patterns across agroecosystems, types of technology, and user groups (linked to ecoregional research).</li> <li>(4) Monitor and evaluate the evolution of the CIAT methodology, as this is disseminated to NARS in at least six countries through training. Assess the costs, benefits, and impact of CIATs.</li> <li>(5) Publish results and develop training materials.</li> </ul>	<ul style="list-style-type: none"> <li>(1) Convene international workshops and seminars for SN-3 and systemwide program.</li> <li>(2) Conduct or facilitate in-house training on participatory research methods and gender analysis for CIAT staff and projects.</li> <li>(3) Institutionalize capacity to teach the CIAT methodology with partner institutions (especially universities) in four focus sites by conducting courses, follow-up training, and training of at least 40 trainers.</li> <li>(4) Feed results into development of public awareness materials (linked to SN-2).</li> <li>(5) Worldwide dissemination of methods and results in conjunction with the CGIAR systemwide program partners.</li> </ul>

# METHODS FOR FARMER PARTICIPATION IN RESEARCH AND GENDER ANALYSIS FOR TECHNOLOGY DEVELOPMENT

## PROJECT PURPOSE

To develop, apply, and disseminate participatory methods and principles of organizational design that improve feedback from end-users of research to scientists at early stages in R&D and that promote low-cost, sustainable, institutionalization of the approach by NARS

## PROGRESS AGAINST PROJECT OBJECTIVES AND MILESTONES

Progress in achieving the project's objectives of assessment of germplasm for acceptability to farmers, new institutional models, and improved capacity to conduct participatory research and gender analysis has been achieved through activity in three main areas this year: in the dissemination of the CIAL methodology through training and monitoring of the CIALs, supported by the W.K. Kellogg Foundation; in the development of institutional models for user participation in community-based planning and management of natural resources; and in the implementation of the CGIAR systemwide program for which CIAT is the convening Center.

The project's objective of assessing prototype NRM technology for acceptability to farmers has not been a major focus of activity in 1997 given that this is included in the scope of work of the anthropologist in the CIAT production systems project (PE5), and because of lack of capacity in the project which will be addressed with the arrival of the new project manager in January 1998.

- **Methods introduced for incorporation of users in early stages of decisions about technology design.** The state of the art analysis which is being implemented through the systemwide program demonstrates that this principle is gradually gaining wider acceptance in the CGIAR and that CIAT's contribution to the early development of this approach in plant breeding (PPB) is widely recognised. Ongoing PPB with CIAT's cassava breeding project is among the most advanced internationally in terms of methodology development. Project development with CIAT Africa is aimed at testing new approaches to PPB with national programs.
- CIAT's natural resource management research in soils and systems is beginning to incorporate and adapt some of the basics of FPR but is as yet a long way from user involvement in the early stages of technology design.
- Low-cost, sustainable institutionalization of FPR by NARS. The institutional model for the watershed user consortium (CIPASLA) is gaining international recognition, with new requests from watershed projects in Peru (CONDESAN), Venezuela, and Colombia for replication, in addition to efforts begun in 1996-7 in Honduras and Nicaragua.
- The farmer agricultural research committees (CIALs), a community-scale model for institutionalizing farmer participation in research, have increased from 55 in Colombia in 1994 to 202 in seven countries in 1997 in response to demand for training in the method, which is a twelve-month course with field work and follow-up training. In Colombia, Brazil, Honduras and Venezuela NARS have invested own resources in replication of CIALs.

- **Improved capacity to conduct participatory research and gender analysis.** Progress against training milestones is steady : the project has achieved institutionalization with two universities (Zamorano in Central America and Universidad de San Simon, Bolivia ) which have incorporated participatory research into the undergraduate curriculum, an important objective of the CIAL project. Over five hundred trainees in seven countries have participated in training in the CIAL method in 1997; from among these a small group of trainers has been identified but the training of trainers is fundamentally undermined by the instability of personnel and budget erosion in the NARS .
- **Impact assessment (IA) of the effects of using participatory approaches and gender analysis.** Assessment of impact on technology design, technology adoption, institutional innovation and empowerment is needed to provide guidelines on lessons learned and best practices; and to enable FPR users to discriminate between spurious or inauthentic participation and the genuine article. An IA field study was initiated in 1997, of the CIAL pilot area in Colombia with CIAT's impact assessment project. A major effort to synthesize the state of the art in IA for this purpose is being implemented through the systemwide program working groups and the organization of a second International Seminar to be held in spring 1998.

### *Project Strategy*

The project's strategy is to work mainly through integrated activities with other CIAT projects for purposes of methodology development, testing and validation which is integrated with capacity building. Virtually no training is carried out unless it contributes to methodology assessment; where this is not the case, all training costs are usually charged to recipients. Gender analysis is an integral part of the training provided in participatory methods: in response to specific requests a separate module on gender analysis is offered.

Assessment of prototype NRM technology and of institutional models for NRM has been carried out mainly with the Community-based management of watersheds project, with minor involvement in the CIAT Soils project systems trials in Hillsides. Participatory plant breeding is conducted in collaboration with the Cassava project (through a shared associate and contribution to the work in the North Coast of Colombia and in Brazil ); and to a growing extent with CIAT Africa where this year's efforts have focussed on project development. This project's objective of developing methodology for participatory plant breeding was also carried out in part under the rubric of the systemwide program. Training in participatory research methods is provided on demand to CIAT projects and their partners. Experimental methodology development is an important part of the project's strategic research, and a major part of this is the development, dissemination and evaluation of the CIAL methodology now being tested in seven countries in Latin America with a variety of NARS partners including NGOs, Universities as well as NARIs. Methods developed and tested through collaborative research are fed into training materials and published for international dissemination.

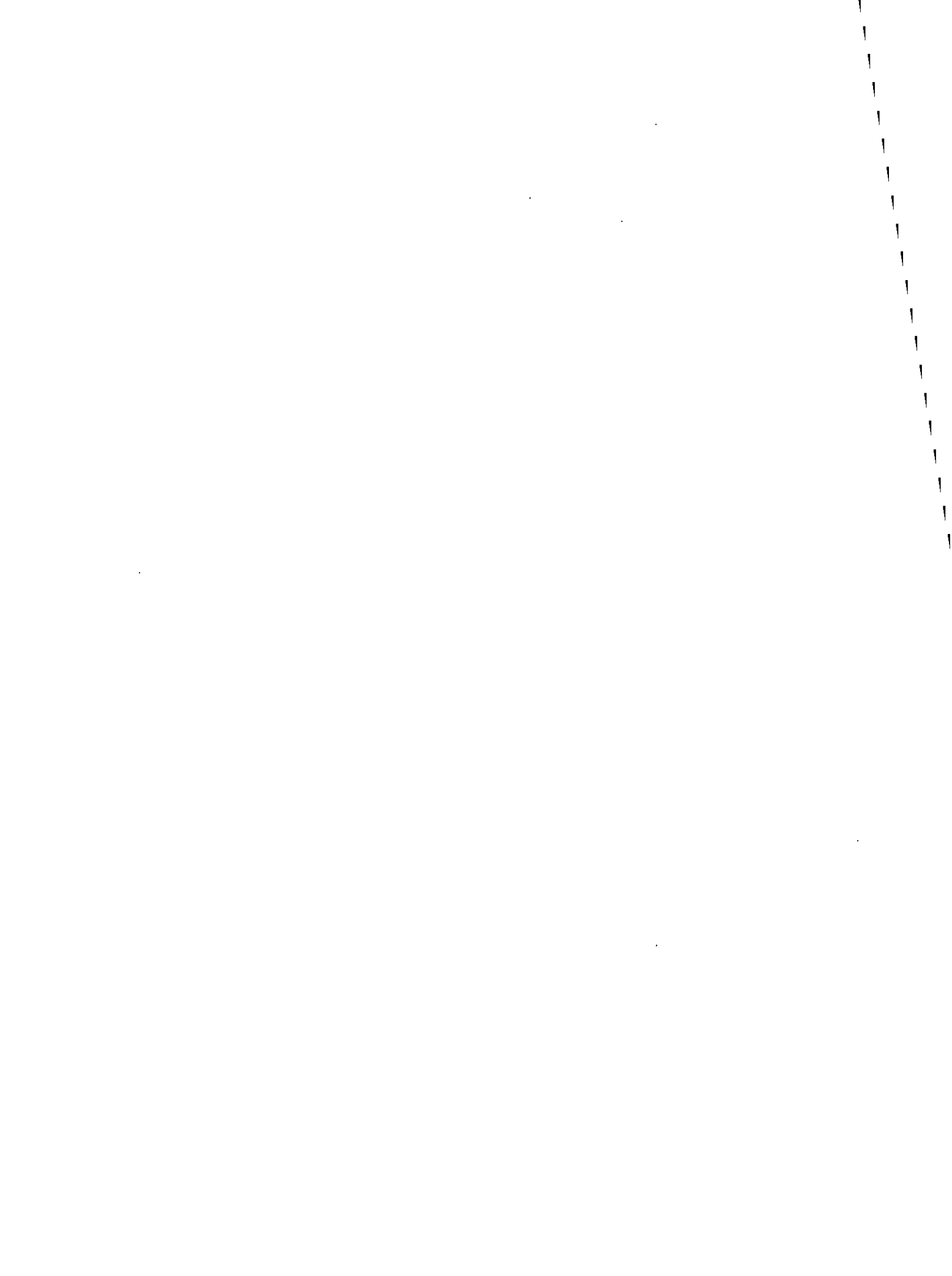
### *Project development*

Recruitment has been important in 1997 with the appointment of a new, full-time project manager to begin in 1998; a social scientist (0.75 percent) working in participatory plant breeding appointed in March 1996 ; and several consultants for the systemwide program.

Fund raising has also been an important activity in 1997. Three competitive grants were successfully obtained : one from the UK holdback fund and one from IDRC Canada, for participatory plant breeding in East Africa, with CIAT Africa; and a second from BMZ Germany in association with the systemwide



program, for a global project assessing the impact of participatory research approaches in NRM. Three new donors joined the existing six (Australia, Germany, IDRC Canada, Denmark, Norway, Netherlands) supporting the systemwide program: Italy, Switzerland and New Zealand.



## PROJECT OUTPUT:

11 MAR 1998

# NEW METHODOLOGY AND INSTITUTIONAL MODELS FOR PARTICIPATORY RESEARCH IN AGRICULTURE AND NRM

### *Activities:*

*Select and test suitable methods for typologies of users or stakeholders; problem diagnosis goal setting; local-level, participatory monitoring of sustainability indicators; conflict resolution (linked to IP-3 and ecoregional research).*

*Conduct strategic sociological research on the impact of novel organizational models on social capital formation and technical innovation in agriculture and NRM. Determine implications for participatory research (linked to CIAT's IP and PE projects).*

*Develop data collection and analytic methods for linking participatory diagnosis, technology evaluation, and gender analysis to GIS databases to identify patterns across agroecosystems, types of technology, and user groups (linked to ecoregional research).*

*Monitor and evaluate the evolution of the CIAL methodology, as this is disseminated to NARS in at least six countries through training. Assess the costs, benefits, and impact of CIALs.*

*Publish results and develop training*

## **A. NOVEL ORGANISATIONAL MODELS: THE CIAL METHODOLOGY**

This research and training is carried out with a grant from the W K Kellogg Foundation for a special project titled "Dissemination of a model for Community based participatory agricultural technology development."

### **EXECUTIVE SUMMARY**

### **PROJECT OBJECTIVES**

The general objective of this project is to disseminate the CIAL methodology to partner institutions, which can be foci of further dissemination to other local entities and communities, through training.

Specific objectives of this project include:

- to prepare a group of at least 40 professionals trained as trainers in the CIAL methodology,
- to train a cadre of at least 250 rural development practitioners, researchers and policy-makers, to support community-based, participatory technology development in their own institutions.
- to train at least 80 farmer-paraprofessionals in community-based, participatory technology development with the CIAL methodology.

- to establish four "focus" sites as permanent training grounds for continuation of the training after the end of the project, where at least 20 CIAL-related community projects are operating in each site by the end of the project.
- to conduct, and document in published form, regular follow-up and evaluation of the dissemination of the methodology by trainers, and other trainees in their institutions; and of the results of the CIAL-related community projects.

## **THE CIAL METHODOLOGY**

### **THE CIAL PROGRAM:**

#### **Local Agricultural Research Committees**

**THE LOCAL AGRICULTURAL RESEARCH COMMITTEE** (Comité de Investigación Agropecuaria Local-"CIAL" in Spanish) is a group of four farmers elected by their community to test new agricultural technologies. The committee identifies community priorities and needs for information about a topic, such as varieties, fertilizers, animal feed mixes, or soil conservation, and then decides what to test. Each committee manages a small fund to finance its experiments, which the committee plans, executes, and evaluates, to determine whether to recommend an innovation to other local farmers. Results obtained by a committee are shared regularly with its community and with others. Committees train local farmers, and may multiply seed or obtain bulk supplies of needed inputs, to ensure rapid adoption and dissemination of the benefits of new technologies.

**THE CIAL PROGRAM** is designed to build sustainable, community-based capacity for innovation in agriculture, using methods that promote farmers' active participation in research. Because public-sector research institutions in developing countries cannot service the diverse needs of large numbers of low-income farmers in many different ecologies, the **CIAL** program mobilizes local leadership to integrate indigenous technical knowledge and modern technology. As a result, locally appropriate and environmentally sound practices, acceptable to farmers, can be identified at very low cost. Since 1990, the **CIAL** program has established committees in rural communities, the majority in response to local demand. The committees receive training in participatory research, experimental methods, farm administration, and accounting. They work with around 6000 farm families in their pilot area in rural Colombia.

**THE ACTIVITIES OF A LOCAL AGRICULTURAL RESEARCH COMMITTEE** are based on the 5 steps of participatory research in which committees are trained: diagnosis, planning, setting up the experiment, evaluating the experiment, and reporting results to the community.

**Participatory diagnosis** is conducted by a committee with the rural community, farmers' association or cooperative which has elected it. In the diagnostic meeting, local farmers speak about doubts or questions they have that need to be resolved. The methodology enables these ideas and suggestions to be prioritized in terms of their importance to the community, how long the experiment might take, or the existence of information on the topic, among other criteria. In this way the community defines its top priority for the committee to work on.

**Participatory planning** of the experiment by the committee is the next step, and it involves local farmers deemed knowledgeable experts on the chosen topic by the community. If a community chooses a topic or a crop that is completely novel, the committee seeks information with the help of local governmental agencies and NGOs, or by visits to other communities.

**Setting up the Experiment.** Once the necessary information has been obtained, the committee works with the CIAL program agronomists or extension agents to design a simple trial, comparing the innovation of its choice with a check treatment. Many communities begin by selecting varieties, and then go on to test fertilizers, new intercropping arrangements, or planting distances in subsequent trials.

**Participatory evaluation** involves the committee and local farmers in defining the criteria by which they will select the treatment they prefer: for example, the best maize variety, or the best method of weed control. The group evaluates each treatment in this way, and keeps a simple record.

**Reporting results** in a meeting of the community ensures that the committee really understands its results and can communicate these to other farmers. This is the moment when many questions, ideas, and information are exchanged; the group then decides what to do next.

## **Results**

Over three planting seasons, some Local Agricultural Research Committees have begun to develop small business in multiplying and selling seed of the improved varieties they have selected, with state approval. One committee is setting up a bakery to produce bread using the soybean varieties it selected. Some committees concentrate their efforts on improving their local food supply and reducing their purchases of food; others are testing crops destined for industrial use and even for established export markets.

**SETTING UP A LOCAL AGRICULTURAL RESEARCH COMMITTEE** requires a small fund (in Colombia, US\$500 is donated to each committee) and an extension agent, paraprofessional, or farmer who can be trained as a trainer.

**Training trainers.** The CIAL program has a small permanent staff of B.S. level professionals, assisted by CIAT, which provides methodology and "training-for-trainers" to these professionals. The program staff trains government and NGO extensionists, and university students, who in turn train the Local Agricultural Research Committees.

**Training a committee** usually involves bimonthly visits by the trainer until results of the committee's first experiment are reported to the community. From then on, trainers visit less frequently as the committee gradually assumes more and more responsibility for planting, evaluating, harvesting, and reporting results. A vital link between the committee and extension and research agencies must be forged during this training period, so that one program staff member can be accessible on two important occasions: when a committee plans an experiment, and when results are interpreted.

**Continuity.** The CIAL program has found that farmers with experience in a Local Agricultural Research Committee can train new members and set up new committees. Backup is needed from a professional trainer in the meetings for planning and interpretation of results. This farmer-to-farmer training means that committee members can train their replacements, ensuring that the institution endures over time.

Learning to keep records is an important feature of this training. This enables committees to acquire a "memory"; they can then exchange their results with other communities.

**HANDBOOKS** on forming a committee, steps in the participatory methodology, and farm administration and accounting are available for farmers and trainers.

### **THE BENEFITS OF LOCAL AGRICULTURAL RESEARCH COMMITTEES MEAN THAT...**

*...this Committee brings a rapid flow of new agricultural technologies and information to poor farmers who cannot be reached by conventional agricultural research.*

*...the Committee tests new technologies under local agroclimatic conditions, using local management practices, and evaluates them according to local farmers' criteria, proving a unique, adaptive on-farm testing service.*

*...state research services receive rapid, timely feedback via committees on the acceptability to farmers of anything new they test. This helps research to design more appropriate technology.*

...via their Committees, poor farmers can articulate their demand for new technologies, instead of simply receiving blanket recommendations. Committees act as "spokespersons" with officialdom.

*...committees provide credit agencies with accurate data on production costs in their area via their training in accounting. This helps committees to obtain better terms for credit in their communities.*

...local leadership in the rural community is mobilized by the Committee to participate actively in agricultural innovation. Some committees finance the cost of time devoted to experimentation by committee members through fund raising they initiate.

*...farmers learn important business-management skills that help them to convert their agricultural production into small agroindustry enterprises.*

...Local Agricultural Research Committees are a nucleus of action for natural resource conservation in the community. Many existing committees are introducing and promoting soil conservation and reforestation.

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*The CIAL program is a special project of the International Center for Tropical Agriculture (CIAT) in collaboration with the Carvajal Foundation and FUNCOP (Fundación para la Comunicación Popular), supported by a grant from the W.K. Kellogg Foundation.*

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## PROJECT STRATEGY

The project's strategy for dissemination of the CIAL methodology will be to create a multiplier effect through training of trainers, follow-up of trainees to reinforce practical experiences, and evaluation of results.

## PROGRESS TOWARDS OBJECTIVES

### *International dissemination*

The project has made substantial progress in the international dissemination of the CIAL methodology in Latin America. Starting from a base of 55 CIALs in the pilot area in Colombia in 1994, the number of these farmer research committees has increased to 202 distributed in seven countries. The multiplication to seven countries has occurred in response to demand from national agricultural research programs in Brazil, El Salvador, Ecuador, Bolivia and Colombia to receive training in the CIAL method. In Honduras and Nicaragua, the institutional demand is almost entirely from NGO's and Universities, reflecting the importance these have attained in the face of weak public sector agricultural research and extension institutions.

### *Focus sites*

The project's objective of establishing four focus sites as regional training grounds where agricultural research and extension institutes or university departments work together with rural communities and NGOs has been partially accomplished:

- A focus site for Central America has been developed in Honduras: 28 CIALs are concentrated in an area where 15 NGOs work with them, and these are linked to teaching of the CIAL method by Zamorano University, through the initiative of the "Proyecto UNIR."
- A second focus site for the Andean region exists in Bolivia, where 11 CIALs are sponsored by the national agricultural research institute IBTA. Staff of IBTA has spearheaded the institutionalisation of participatory research as an elective in the curriculum of the Agronomy Faculty, by regularly teaching workshops there on the CIAL methodology.
- In Colombia the national agricultural research program CORPOICA has established its own focus site with 15 CIALs sponsored by the regional extension program. CORPOICA has proposed that CIAT help to "nationalise" the CIAL methodology, but the project has encouraged CORPOICA to first evaluate the approach thoroughly and to form a cadre of professionals as trainers who will be able to scale up the approach if CORPOICA continues to want to do this.
- A fourth site exists in north-east Brazil where 26 CIALs, called COPALs, distributed in six states have been created entirely with resources of the national research program EMBRAPA/CNPMP at Cruz das Almas, state extension agencies and training by this project, partially financed by UNDP.

In no one focus site however, has the full linkage of public sector research, NGOs, communities and University, been fully constructed in keeping with the principles envisaged in the original project design, and this implies certain risks for the long-run viability of the CIALs in the focus sites, summarised below in relation to future plans.

### *Training*

By working with a total of 359 participants in training, the project has also advanced beyond its objective of preparing at least 250 professionals in the CIAL method. The training strategy involves one-year of course work and practical field experience with regular follow-up training by this project. In



Honduras, Colombia, Ecuador, Nicaragua, Bolivia and Brazil, the one-year course and at least one follow-up training visit have been completed on behalf of 182 participants from 92 institutions.

The project has been successful in most cases in maintaining the commitment of trainees and their institutions to the one-year process. Attrition of trainees has been most marked in Ecuador and Nicaragua where in the early stages of the project, the collaborating institution did not follow the project's recommended procedure for selecting trainees and did not obtain a written commitment from their institutions prior to the course.

Our trainees have already started training others in the CIAL method: a total of 177 additional people were trained by them in 1996-7.

The project also has the objective of preparing at least 80 farmers as trainers in the CIAL method. In Colombia, four farmers from CIALs in the pilot area are running the second-order organisation of CIALs there, called CORFOCIAL. These farmers have been providing training to Colombian municipal extension agents on a fairly regular basis; so far they have trained 25 individuals from 8 municipalities. In this way they help to generate an income for CORFOCIAL which pays their wages for supporting and training the 60 or so CIALs. It is also highly instructive for young, freshly hired professionals to receive training from farmers!

#### *Multiplication and institutionalisation of the CIAL method*

The project has achieved considerable progress in institutionalising the CIAL method in the university teaching in two focus sites (Honduras and Bolivia) and has obtained a strong expressed interest in institutionalisation from CORPOICA, Colombia. By contrast in Brazil and Ecuador, the project has not yet been successful in forming a trainer or group of trainers to take on the teaching. EMBRAPA/CNPMF has embraced the CIALs/COPALs but budget cuts and internal dissension about methodologies has slowed progress, and a recent disposition to do some minimalist training in participatory methods in an ad hoc fashion threatens to undermine the previous work done there. In Ecuador, CIALs are being formed by INIA and the international NGO, IIRR, but their teaching partner FLACCSO has lost budget and capacity to meet their needs for training.

Much remains to be done to consolidate a critical mass of professionals and farmers experienced in the CIAL methodology, and capable of providing training to multiply its use. Progress toward this objective has been slow, due to several factors. The instability and fragility of the institutional environment in Latin America, both public sector and NGO, causes incessant and massive turnover and job insecurity among the type of professionals participating in this training, and poses a major challenge for the training of trainers as a strategy for institutionalising the CIAL method.

A second obstacle remains the importance for the CIALs of having a small fund which the committee manages on behalf of its community. The CIAL fund is maintained like a rotating fund to finance the CIAL experiments and absorb the risk of experimentation with locally untested technologies, which is the fundamental purpose of the CIALs. The absence of a CIAL fund creates in some circumstances, dependency of a CIAL on the host institution, and undercuts the capacity of the farmers to assert their own agenda and articulate their own demand for research rather than express servile acceptance of handouts.

NGOs readily work with the idea of rotating funds for communities, but few have own funds to supply this resource to CIALs. The management policies of public sector institutions in particular are an obstacle to institutionalising the CIALs on a sound fiscal basis, since they do not permit farmer groups like the CIALs to receive public monies in any form other than operational costs which must be spent out

annually. In Brazil, the public sector extension agencies have worked around this obstacle by getting the Agricultural Banks in some areas to set up savings accounts which the CIALs use for petty cash to plan and execute their own experiments. Innovative institutional arrangements like this one require further experimentation and will be vital if CIALs are not to fall victim to the vagaries of public sector financing for agricultural research and extension, especially if they are to be increased in number on the scale proposed by CORPOICA for example.

In some institutions the structure of the research program is organised around the principle of supply-driven research which makes it virtually impossible for the program to allow farmers they work with to set priorities except within the framework of the commodity or research theme to which the program is dedicated. This may mean that such a research program should not sponsor CIALs but needs to be linked with CIALs that have independently prioritised the research theme or commodity to which the program is dedicated. Thus the need persists for a mechanism to institutionalise the autonomy of CIALs from supply-driven formal research departments and projects, which only want farmers to work with them on a specific topic.

A third factor is that the quality of leadership in teaching and applying the CIAL method seems to be at least as critical to effective multiplication and sustainability of the method, as the institutional environment *per se*. This leadership depends on an understanding of the principles of authentic participation, which underpin the CIAL methodology. The formation of this understanding has to come through steady exposure to the experience of working in a genuinely empowering participatory process, whether with the CIALs or some other process, and it is difficult to construct this experience in a short time.

In contrast, many professionals involved in the training and their supervisors, are acculturated to paternalistic attitudes to farmers, and are fearful of letting farmers make risky decisions in research. This is often equally true of NGO-based professionals as of university professors or of international Centre scientists. Many of the professionals who participate in the training are familiar with group approaches to extension and are in a hurry to apply and teach the CIAL method once they have been through the ten-day initial training course, in order to persuade farmers to take up whatever "best-bet" technology they happen to have uppermost in their own program or project. Selecting the right kinds of participants who have some background in authentic participation and action research processes therefore becomes crucial to providing the kind of leadership needed to strengthen the CIALs.

Follow-up and evaluation of CIALs by the project shows that farmers in newly-formed CIALs can easily be manipulated by a professional who is unable to accept the idea that farmers have to make some key decisions in the local research process if they are to have ownership of it. The untrained CIAL can be misled into prioritising topics for experimentation that reflect the agenda of outsiders rather than that of the community. The net result is disaffection and alienation from the process within the CIAL and the wider community. In contrast, project follow-up studies show that "mature" CIALs experienced in setting their own agenda and experimenting on that basis, are characterised by a willingness to question outsiders' agenda and ask them to justify it.

Thus quality leadership and successful transmission of the method requires the CIALs' trainers to internalise the basic principle that farmers decide the topic of experimentation. This project has made notable inroads on agricultural researchers' and extension agents' usual perception of farmers as recipients of recommendations, who have to be protected from risky innovations, a perception which entirely ignores the wealth of inventive experimentation and knowledge generation which is characteristic of small farmers. There exist among the project's collaborators a small number of "converts" in the scientific community, themselves established senior scientists or extension managers who through direct involvement with the CIAL method, are convinced of the contribution that farmers can make to research.

Nonetheless their number is still small; more such individuals are needed in positions where they are able to influence both institutional management policies as well as teaching curricula, for the institutionalisation and multiplication of the CIALs to be sustainable.

Possibly the most difficult, and unresolved issue still to be tackled by this project, is that of how to institutionalise the CIALs on a sustainable basis: questions still to be answered concern what organisational arrangements will enable the CIALs to develop a secure financial base: to develop leadership of development processes: and whether the regional organisation of CIALs is a step in the right direction.

### **Evaluation of the process of diffusion and the impact of the CIAL method**

Systematic study of the impact of the CIALs has begun in the Colombian pilot site where CIALs formed in 1990-94 have had farmers experiments long enough to disseminate their results. Preliminary studies show farmers with greatly expanded access to new germplasm; more diversity of crops where CIALs experiment; improved yields and food availability. Farmers involved and CIALs are more able to initiate links with external development agencies, land reform and credit. They attract outside organisations like the state extension service in Colombia which buys their seed and distributes it. They initiate efforts to organise their community and they are more confident about making demands on outsiders. These effects need to be quantified and their distribution among different groups analysed in the survey being designed at the time of writing this report.

One of the important objectives of the project is to monitor and evaluate the process of diffusion of the CIAL method, and to examine how it is being used and institutionalised in different ways. Adaptations, new ideas and approaches incorporated into the approach are of especial interest, as is understanding the reasons for success and failure in different circumstances. To date the process of diffusion is being monitored in several ways. One is by means of the regular follow-up visits of the trainers to observe practice in the field. They document observations on what is replicated from the training course, what innovations are made in the approach, what problems occur and how these are solved.

A wealth of adaptations and variants on the basic model are being observed. Usually the most creative ones come from the farmers themselves. An important innovation for example, is the adaptation of training handbooks for use by illiterate farmers initiated with an NGO in Nicaragua for use throughout Central America. Another adaptation has occurred in Brazil where in contrast to Colombia, the CIALs called COPALs actively involve more than the four-elected committee members and there is a sizeable group of men and women active throughout the process. This may be an adaptation to cope with the need of these very poor farmers to leave their farms to do day labouring, so the larger group ensures that the experiment is never neglected because people have to spend time working away from the village.

In some cases, farmers in the CIAL have added their own experiments to the one prioritised with the community so they are socialising their own "curiosity" research through the CIAL and are using the method of controlled experimentation. A few CIALs, which have tested varieties, have evolved into small-scale seed producing enterprises.

In one case, the CIAL went on from variety testing to experimenting with an adapted small-scale maize huller to cope with the increased maize production. They then formed another CIAL of women in a neighbouring community to test soybean varieties, to see if they can produce a local chicken feed by mixing the maize waste by-products with the soybean; chickens are typically a woman's enterprise in this region. The women almost abandoned the soybean experiment when they discovered how hard the beans

are to shell, but the men kept them motivated with the promise to try and develop a small-scale thresher along the lines of the maize huller.

In Colombia, two CIALs have mobilised to take advantage of Land Reform that gives preferential treatment to groups, which can show a record of collective production activities. In the case of the one CIAL successful so far in obtaining a land grant, the land acquired is being used for seed multiplication to meet the demand for varieties selected by the CIAL in their experiments.

A different adaptation of the CIAL method which requires careful study, is the harnessing of the approach to commodity research – which requires the farmers to work on the commodity in question, rather than on their own first priority. This seems to work in areas where the commodity in question is of overwhelming importance in the local production system. In the north-east of Brazil for example, before forming CIALs/COPALs to work on pest management problems, specifically Cassava green mite, an IPM project (PROFISMA) carried out participatory diagnoses in a large number of communities. The farmers diagnosed poor soil fertility and cassava root rots as higher priorities than green mites. Because the commodity program's diagnosis with farmers covered a huge area (six states), the sheer numbers of farmers prioritising these two issues, and the consistency of their response, caused the research program to rethink its objectives and reorient to include the farmers priorities. This points out the importance of scaling up the coverage of the CIALs' diagnosis in order to give them a real voice in research planning; whereas one community's priority would have been a voice in the wilderness.

A second component of monitoring is the "Encuentro CIAL" which is held at the completion of a one-year cycle of training, and is a regional meeting of CIALs. Two representatives attend from each CIAL which has to get their community to finance the attendance costs. The CIALs exchange results of their experiments; they evaluate the process by answering questions like "How can we improve?" in small group discussions; and they evaluate

the technicians working with them. "Encuentros" have been held in Colombia and Honduras so far; and will extend to the other countries in 1998.

A third element of monitoring is the application of a questionnaire with each CIAL which the project has developed as an instrument for measuring and assessing the degree to which farmers in the committee have grasped the basic ideas of controlled comparison in space as well as over time; and the extent to which the CIAL is managing priority setting with the community, is planning the experiment as well as planting and evaluating it; or is dependent on an outsider telling them what to do.

An impact assessment study in the 1990-1994 pilot site in Colombia has been designed to look at the benefits of the CIALs' experimentation for their communities; and their capacity to make demands on the local institutions and orient their agenda. Data collection for this study will begin in late 1997, including case studies to document the process of change in the communities.

## **FUTURE PLANS**

### *International dissemination of the CIAL method*

The project will concentrate on capacity building, institutional innovation and impact assessment in at least four main focus sites (Honduras, Colombia, Bolivia, Ecuador and possibly Brazil depending on the institutional commitment there as UNDP funding ends in 1997) in the remaining year of the grant from the W.K. Kellogg Foundation. Training begun in Nicaragua and El Salvador will continue with the involvement of local trainers, and will be extended to include Venezuela (at the request of the Ministry

which will cover costs of training through a BID-funded project); and Mexico at the request of the University of Yucatan, which is providing independent funding obtained from DfD, UK.

CIAT's Communications Unit proposes to produce a video on the CIALs in 1998 for which additional funding will be sought. The video will highlight results of the impact study in the pilot area in Colombia and cases from other countries, and the experience of institutions using the CIAL method. It will be aimed at high level decision-makers, research managers and policy makers (such as those who negotiate development bank loans) to support the process of building awareness of results at a policy level, which is needed for effective institutionalisation.

The project will also work closely with the CGIAR systemwide Program on Participatory Research and Gender Analysis launched in early 1997 by CIAT (as the convening centre) together with CIMMYT, IRRI and ICARDA which are cosponsoring Centres, and over 50 NGOs, Universities and NARIs worldwide. The systemwide program is an important forum for exchanging experiences and obtaining new insights which will help the project to tackle the main issue of how to institutionalise at a large scale; and to disseminate its own experience internationally.

### *Training*

The project will continue to build capacity concentrating on the focus sites. In 1997-8 the project will select a small group (up to 40 individuals) from the participants who have completed the one-year training cycle, and who belong to institutions with a commitment to teaching. These individuals will be provided with further training as trainers or "multipliers" of the CIAL methodology and will be expected to join the course with a commitment to teach their own courses. In practice, a number of participants have already begun teaching, for better or worse some did so almost as soon as they completed the first ten-day course, and without having the year of practical experience recommended by the project. This early spurt of training has to be evaluated to guide the future formation of trainers.

It may be that farmers prove to be the lasting foundation on which the training and multiplication of the CIAL method is based, if the turnover of professionals trained as trainers outpaces the capacity of the project or the two universities involved in the training to replace them. The project has the objective of preparing at least 80 farmers as trainers in the CIAL method. Four Colombian farmers have proved to be effective trainers of extension agents as well as of other farmers; and a few "mature" CIALs in the Colombian pilot site with 5-7 years of experience have begun to help neighbouring communities to form their own committees.

CIALs with at least one year of formation in the focus sites will be asked to nominate interested farmers to receive training as trainers, and a farmer-to-farmer training process will begin in 1997-8. Time is short, given that 1997-8 is the last year of the project, for fully assessing the long-run potential of the farmers as trainers of extension agents on a larger scale than hitherto. However farmer-trainers with real experience in the CIAL process may be better at teaching the method than hastily prepared professionals who teach before having practical experience with the method. Farmer-trainers may be an important feature of a massification of the coverage of CIALs on a regional scale; this potential will begin to be assessed in the last six months of the project.

### *Scaling up for mass coverage and secure institutionalisation of the CIALs*

Interest in large-scale coverage by CIALs has been raised by some of the project's institutional partners, but this raises many unanswered questions:

- Where should CIALs be located spatially in an ecosystem, or in a region in relation to the priorities of a national adaptive research program? Should every community that wants a CIAL have one? What is the area of influence of a CIAL? What is a desirable concentration of CIALs in a given area?
- What application does the CIAL method have for improving natural resource management or is it suited only experimentation with production technology?
- Are CIALs only useful for poor farmers?
- What enabling policies are needed for CIALs (e.g. in relation to financial arrangements, research program structure or university curricula for example)?
- What institutional support should be given in an effort to achieve broad coverage of a region by CIALs?
- What might be the division of labour between farmer-trainers, professional trainers and CIALs as trainers in an effort to set up broad coverage?
- How would a national program process information from hundreds or thousands of CIALs, and systematise its responses? What is the potential role of the CIAL database especially if it is interactive and can be queried by farmers and extension agents to communicate among CIALs? What might be the relationship of CIALs involved in a process of large-scale coverage of an area to the information revolution (www)?
- What policy innovations are needed to support CIALs?
- What institutional innovations and financial mechanisms need to be introduced to put the CIALs on a sustained footing?

The project will not attempt to answer these questions in the remaining 12 months of the present grant, but the participating institutions in each country will be sent a questionnaire requesting specific observations and their general evaluation of the CIAL method, and the project will decide on the basis of these responses whether to hold workshops at the focus sites or an international workshop. This meeting would explore issues and exchange experiences related to institutionalisation and scaling up, and propose a strategy or strategies to be assessed and compared in the future. This could be the basis for a new proposal to the W.K.Kellogg Foundation.

To put the existing CIALs in the focus sites on a sustainable footing, creative new institutional and financial arrangements need to be devised and tested. Other than in CORFOCIAL, Colombia, the participating institutions have not yet developed enough experience with numerous CIALs nor are they managing CIALs in a way that requires them to design a financial arrangement other short-term project funding. One NGO in Honduras for example, has presented a project to SWISSAID and obtained funding to support more CIALs, but this does not solve the issue of long-run sustainability.

The follow-up of the diffusion of the CIAL method in 1998 needs to focus more on specifics. Project staff will visit and analyse each institution's experience specifically for insights that may be indicative of promising avenues to pursue in relation to formulating a strategy for long-run viability of the existing CIALs, as well as for scaling up for mass coverage.

In Honduras, at their "Encuentro" the CIALs recommended organising themselves at the second level as a means of establishing continuity. Possibilities for second-order organisations of CIALs to lever new sources of funds or to collectively save and accumulate part of the funds they need with community support have not yet been explored.

The impact study in Colombia will be completed and written up; some elements of this study may be carried out in other countries if there are CIALs which began experimenting long enough to have recommended or supplied new technologies to their communities.

## **RESUMEN DEL PROYECTO IPRA**

### **Objetivo General**

El propósito de este proyecto es la difusión internacional de la metodología de los "Comités de Investigación Agrícola Local-CIAL", previamente desarrollada y probada por el CIAT en Colombia.

A través de esta metodología, se busca consolidar la capacidad local de participación "activa" de comunidades rurales, en su propio desarrollo tecnológico agrícola y en la adopción de nuevas tecnologías, a partir de la investigación adaptativa en agricultura. Además, se propone desarrollar una capacidad multiplicadora de la metodología CIAL en pequeña escala a nivel internacional, inicialmente en Ecuador, Bolivia y Honduras; en Nicaragua a partir del segundo año y posteriormente, hacerlo en Brazil y México.

### **Objetivos Específicos**

- Preparar un grupo de por lo menos 40 profesionales capacitados como multiplicadores de la metodología CIAL.
- Capacitar una masa crítica de aproximadamente 250 profesionales del desarrollo rural, investigadores y directivos de instituciones a nivel decisorio, para que sus entidades apoyen el desarrollo tecnológico a partir de las comunidades.
- Capacitar alrededor de 80 agricultores para-profesionales, en el desarrollo de tecnología participativa en el ámbito de la comunidad, utilizando la metodología CIAL.
- Establecer cuatro "focus sites" o sitios piloto, que servirán de centros permanentes de capacitación, para continuar el proceso de capacitación una vez finalice el proyecto.. Se espera dejar en operación por lo menos 20 proyectos comunitarios relacionados con los CIAL, en cada focus site, al finalizar el proyecto.
- 
- Hacer un seguimiento sistemático y evaluar el proceso de difusión de la metodología por parte de los capacitadores y de los otros capacitados en sus instituciones, publicando finalmente los resultados.

### **Estrategia**

La estrategia del proyecto para difundir la metodología CIAL, consiste en crear un efecto multiplicador mediante la capacitación de capacitadores; el seguimiento de los capacitados para reforzar las experiencias prácticas y la evaluación de los resultados.

La estrategia incluye la creación de contextos de capacitación llamados "Focus-sites" donde organizaciones gubernamentales, no-gubernamentales, universidades y organizaciones de base participantes, viven un proceso de "aprender- haciendo" en relación con la metodología CIAL.

La estrategia aplica métodos participativos con agricultores en pruebas de adaptación de tecnología a través de Comités de Investigación Agrícola Local-CIAL. Esto, mediante la vinculación de los CIAL con el sector público y con entidades de investigación como el CIAT; a través de organizaciones tales como ONGs y cooperativas de productores principalmente en tres áreas: Ensayos varietales, conservación de suelos y manejo integrado de plagas y enfermedades. Se busca así, ampliar el número de comunidades vinculadas a la generación de tecnología, a través de la capacitación y transferencia de innovaciones de comunidad a comunidad.

Desde el punto de vista operativo para la implementación del proyecto, entre Julio de 1.995 y Julio de 1.997, el equipo IPRA ha estado conformado por un sociólogo (PhD), un sociólogo asociado de capacitación financiado por el CIAT; dos ingenieros agrónomos, parcialmente financiados por la Fundación Kellogg; y un asociado ingeniero agrónomo trabajando con mejoramiento de Yuca, financiado por el CIAT.

### **Preguntas Claves para la Evaluación del Proyecto**

La evaluación del proyecto responderá a las siguientes preguntas:

**1. ¿Cómo ha sido adoptada e institucionalizada la metodología CIAL por parte de las instituciones participantes?**

- ¿Ha contribuido la metodología CIAL a que ONGs, organizaciones de productores y comunidades rurales puedan comunicar sus necesidades de desarrollo tecnológico a otras instituciones participantes?
- ¿Se ha promovido el reconocimiento de la capacidad de los agricultores para realizar su propia investigación adaptativa, con el apoyo de técnicos agricultores, investigadores y las personas que trazan las políticas?
- ¿Se han establecido acuerdos de coparticipación innovadores en los cuales los agricultores se desempeñen como investigadores y como capacitadores?
- ¿Las instituciones participantes, han definido prioridades para el desarrollo de tecnología en los sitios de actividad, como respuesta a las necesidades identificadas por las comunidades?

**2. Impacto de la capacitación de capacitadores**

¿Cuántas instituciones y comunidades están utilizando la metodología CIAL para desarrollar tecnologías en forma participativa?

- ¿Cuántas personas y con qué formación profesional se han capacitado?
- ¿Se ha institucionalizado, mediante la capacitación de capacitadores, la posibilidad de continuar el proceso de capacitación después de que el proyecto termine?
- ¿Los capacitadores y sus capacitados han incorporado ideas o técnicas nuevas enriqueciendo así la metodología CIAL?

**3. Impacto a nivel de la comunidad:**

- Con la capacitación de los líderes comunitarios y los agricultores en las comunidades locales, se ha fortalecido su propia capacidad de identificar los problemas que requieren de investigación adaptativa, o desarrollado vínculos con otras instituciones para ensayar soluciones mediante la investigación adaptativa?
- Ha aumentado la disponibilidad de tecnologías útiles en las comunidades participantes, mediante los proyectos comunitarios relacionados con los CIAL? Han mejorado la productividad y los ingresos de los agricultores?



## **PROGRESO HACIA LOS OBJETIVOS**

### **Resumen de Logros**

#### **Difusión Internacional de la metodología CIAL**

- *Síntesis del Proceso*

El proceso de identificación de entidades participantes potenciales en la ejecución del proyecto en los distintos países, se inició visitando aquellas con las cuales IPRA tenía actividades previas sabiendo su interés en la metodología y tenían cierto liderazgo en el área. Se contactaron entidades gubernamentales y ONGs; universidades y asociaciones de productores en Honduras, Nicaragua, Ecuador y Bolivia con el fin de verificar su interés; su disponibilidad a trabajar en equipo en el campo con otras entidades, la compatibilidad de sus metas y estrategias con los objetivos del proyecto; y su liderazgo institucional.

Se han firmado convenios de ejecución del proyecto en dos países. En Ecuador, con la Fundación Latinoamericana de Ciencias Sociales (FLACSO), y con el Instituto Internacional para la Reconstrucción Rural (IIRR). En Bolivia, con el Programa de Investigación de la Papa PROINPA y la Universidad de San Simón (UNSS).

En los otros países, IPRA está trabajando con acuerdos informales que hasta ahora han resultado eficaces. En Honduras, trabajamos con el proyecto Investigación Participativa en Centro América (IPCA) del Instituto Internacional de Reconstrucción Rural-IIRR. En Colombia, con las Unidades Municipales de Asistencia Técnica-UMATAS y con la Corporación para la Investigación Colombiana Agropecuaria (CORPOICA).

En Nicaragua, el proyecto trabaja con el Centro Inter-eclesial de Estudios Teológicos y Sociales (CIEETS) y el Programa de Agricultura Sostenible en Laderas Centroamericanas (PASOLAC). Desde 1997, el proyecto trabaja también en El Salvador por solicitud de la Fundación para la Cooperación y el Desarrollo Comunal (CORDES) y del Centro Nacional de Tecnología agropecuaria y Forestal (CENTA).

En Brasil, el trabajo se realiza con el CNPMF (Centro Nacional de Pesquisa em Mandioca e Fruticultura) de EMBRAPA; con las Empresas Estatales de investigación agrícola, en los cinco Estados donde se desarrolla el proyecto PROFISMA (la Empresa Bahiana de desenvolvimento Agropecuario (EBDA), EMATER Paraíba y EMATER Pernambuco, EMATERCE de Ceará), a las cuales están vinculadas algunas universidades y ONGs.

En Brasil se realizan otras actividades de investigación participativa en desarrollo de germoplasma y mejoramiento en yuca para el subtrópico y semiárido en coordinación con los Programas de Mejoramiento de Yuca del CNPMF (EMBRAPA) y del CIAT, con el apoyo financiero de IFAD, como se verá más adelante en este informe. Actividades similares se adelantan en la costa norte colombiana en coordinación con los institutos nacionales de investigación y extensión, ICA y CORPOICA.

- **Capacitación**

IPRA utiliza una estrategia de capacitación que incluye cuatro fases así:

- Primera Fase: Curso I, sobre conocimientos y **destrezas** básicas de la metodología CIAL (ver Anexo I, para ejemplo de **programa** para este curso).
- Segunda Fase: Seguimiento por parte de IPRA, a **la** aplicación del método en el campo por parte de los capacitados y evaluación de **la** metodología por las instituciones.
- Tercera Fase: Curso II, Capacitación de **capacitadores**
- Cuarta Fase: Replicación del Curso I, por los **nuevos** capacitadores con el apoyo de los capacitadores del CIAT.

La capacitación está precedida de un **compromiso serio** de las instituciones participantes para aplicar la metodología en su trabajo por lo menos **durante un año**, una vez terminada la Primera Fase; y por parte de IPRA para hacer un **seguimiento de apoyo**. Con este propósito, las entidades se comprometen también a **seleccionar para la capacitación aquellas personas** que trabajan o trabajarían en áreas de actual o potencial aplicación de la metodología.

En la Primera Fase - Curso I, ya realizado en **siete países** (Ecuador, Bolivia, Honduras, Nicaragua, Brasil, Colombia y El Salvador), los participantes **reciben** durante dos semanas los conocimientos básicos y practican las destrezas necesarias para la aplicación **correcta** de la metodología CIAL (verse Tabla 1). Especial importancia se da a las practicas en campo **donde** los capacitados son expuestos a interactuar con agricultores, diagnosticando con ellos problemas, **planeando ensayos, evaluando tecnología y analizando resultados**. (Ver Anexo I, para ejemplo de programa de capacitación para el Curso I).

La Segunda Fase, comienza con la organización **de** Comités de Investigación Agrícola Local-CIAL, por parte de los capacitados en sus zonas de trabajo, y **el** seguimiento a esta actividad por parte de los capacitadores del CIAT. El seguimiento a las actividades **de** aplicación de la metodología en las áreas de trabajo de los capacitados después del Curso I, tiene **especial** importancia y es considerado como **una** continuación y refuerzo de éste, ya que es en el campo **donde** surgen dudas y necesidad de solucionar situaciones específicas que no pueden ser a veces **resueltas** por los recién capacitados.

Tabla 1. Eventos de capacitación y seguimiento sobre la Metodología CIAL para crear "Focus-sites"  
Julio 1995-Julio 1997.

Fecha	País	Lugar	No. de Participantes	No. de organizaciones	Seguimiento fechas
Febrero 6-24/96	Honduras	Tegucigalpa	19	15	Ene. 2-8/96 Ago. 18-24/96 Nov. 10-16/96 Abr. 17-23/97
Abril 15-26/96	Colombia	Cali	35	15	Sept. 30-Oct. 3/96 Dic. 12/96 Feb. 18-19/97 May. 29-30/97
Mayo 9-24/96	Ecuador	Quito	25	17	Oct./96 Feb. 25-Mar. 4/97
Julio 1-11/96	Nicaragua	Managua	17	10	Nov. 1-4/96 Mar. 31-Abr. 3/97
Agosto 22 a Sept. 2/96	Bolivia	Cochabamba	18	8	Oct. 28-Nov. 4/96 Jun. 22-28/97
Marzo 4-10/96	Brasil	Cruz das Almas	35	12	Oct. 25-Nov. 2/95 Ene. 3-10/97
Abril 7-16/97	El Salvador	San Salvador	17	8	Julio 22-26/97
Mayo 27-30/97	Brasil	Santa Catarina	11	1	
Mayo 5-15/97	Ecuador	Quito	16	9	
Mayo 17-30/97	Brasil	Frei-Páulo	24	5	
<b>Total</b>			<b>217</b>	<b>100</b>	

El seguimiento comienza pasados unos meses de iniciada la aplicación de la metodología en los terrenos de trabajo de los capacitados; analizando con ellos sus experiencias, y buscando construir con ellos respuestas a las dudas y dificultades mediante contactos individuales y grupales. Durante el seguimiento, se recoge también material nuevo para la preparación de nuevos ejercicios y estudios de caso para futuras capacitaciones.

Durante el proceso de seguimiento, se analiza igualmente, el potencial de las diferentes instituciones y funcionarios que podrían participar en el Curso II sobre capacitación a los futuros capacitadores locales de la metodología.

La Tercera Fase que se realizará a partir del segundo semestre del año 97, permitirá capacitar como multiplicadores de la metodología a un grupo seleccionado entre los participantes (tanto instituciones

como personas) a partir de los cuales se consolidaría la capacidad nacional en los países para ampliar las masas críticas en capacidad de aplicar la metodología.

En la Cuarta Fase, los capacitadores asumen directamente la responsabilidad de planear y desarrollar eventos de capacitación en la metodología CIAL contando en su primera experiencia, con el apoyo de los capacitadores del CIAT.

- **Capacitación de capacitadores**

En la práctica, el proceso de capacitación no se ha desarrollado rigurosamente en las cuatro fases secuenciales previstas. En varios casos, los capacitados en la Fase I se han lanzado casi inmediatamente como capacitadores generalmente por exigencia de sus entidades, multiplicando el conocimiento de la metodología mientras que la Fase I aún está en camino (ver Tablas 2 y 3).

La rapidez de la multiplicación espontánea refleja que muchas entidades y profesionales encuentran en la metodología una respuesta efectiva a la necesidad de involucrar la participación del agricultor. A la vez, implica que algunos usen la metodología para lograr objetivos ajenos a los propósitos reales de esta tal como transferir tecnología en vez de *investigar y adaptar* tecnología con los productores.

En la Tabla 2, puede verse la difusión de los conocimientos adquiridos por las personas que han recibido el Curso I. Como mencionamos anteriormente, esto ocurre en parte, por el interés que despierta la metodología en las instituciones representadas en las capacitaciones, o en otras instituciones que trabajan en la misma área. Observamos que a veces la necesidad de multiplicación de masas críticas, en capacidad de aplicar la metodología CIAL aparece antes de que las personas capacitadas hayan tenido oportunidad de aplicar en campo toda la metodología al menos por un ciclo productivo completo y que de otra parte, se hayan podido observar y evaluar como potenciales capacitadores. A través de este proceso espontáneo de multiplicación, el número de capacitados se ha casi duplicado.

Tabla 2. Personas y entidades capacitadas por participantes en el Curso I, sobre la metodología CIAL Enero de 1996-Julio de 1997.

País	Capacitados por los participantes (No.)	Entidades (No.)
Bolivia	75	12
Colombia	65	9
Ecuador	25	10
Brasil	40	10
Honduras	12	2
<b>Total</b>	<b>177</b>	<b>33</b>

Tabla 3. Personas capacitadas por agricultores para-profesionales.

Institución	País	Técnicos capacitados	Entidades
CORFOCIAL	Colombia	25	8

- ***Esfuerzos para la producción/adaptación local de materiales de capacitación***

IPRA ha tenido conocimiento de una serie de esfuerzos cada vez más frecuentes para producir y/o adaptar materiales de capacitación de la metodología CIAL, que aparecen por parte de personas capacitadas o simplemente de quienes han conocido los materiales producidos por el proyecto y los encuentran de interés para su trabajo y para el de una amplia mayoría. Por ejemplo, un profesor de una universidad en Inglaterra (J. Witcombe), quien coordina un proyecto de desarrollo sostenible en la India, adaptó las imágenes y los textos a la cultura Indu. Una organización llamada FRAO en Senegal, tradujo al francés e hizo adaptaciones de algunos materiales y los está vendiendo en el Africa de habla francesa. PRIAG en Centro América comenzaba algún intento por adaptar las cartillas para ganadería de bovinos. Otros esfuerzos han surgido en Bolivia, Honduras y en las Fiplipinas por parte del IRRI.

La Facultad de Medicina Veterinaria de la Universidad de Mérida en Yucatán está interesada en adaptar los materiales de capacitación (hasta ahora principalmente orientados al componente agrícola) a la investigación pecuaria de especies menores (lo que en México llaman animales de traspatio), dentro del sistema milpa. La universidad desea hacer este trabajo, dentro de un proyecto llamado DIP (Diagnóstico Participativo) en el que participa la Universidad de Londres contando con financiación de la ODA. Un proyecto fue ya elaborado por la facultad de Medicina Veterinaria para buscar financiación para este propósito.

Sin duda, existen otros esfuerzos en esta dirección sobre los cuales solo se tiene poca información como en algunas partes en Asia. IPRA espera hacer un seguimiento más cercano a este efecto deseado con relación a los materiales de capacitación producidos por el proyecto.

#### **Los "Focus Sites": Hacia una institucionalización de la metodología CIAL**

La estrategia del proyecto, propone crear por lo menos cuatro focus-sites o sitios piloto, donde la metodología CIAL sea aplicada con las comunidades y donde un proceso permanente de "aprender haciendo" pueda apoyar la capacitación futura. Esta meta se está logrando básicamente a través del trabajo que el proyecto adelanta con:

##### **Bolivia**

PROINPA, IBTA y la Universidad de San Simón.

##### **Brasil**

La EBDA, EMATER (Ceará y Pernambuco), IPA y EPACE.

##### **Colombia**

CORPOICA y las UMATAS.

##### **Ecuador**

El IIRR y FLACSO.

##### **El Salvador**

CORDES

##### **Honduras**

Zamorano (Proyecto UNIR).

FEPRO

PROYECTO IPCA

## Nicaragua CIEETS

### Honduras

A pesar del esfuerzo realizado en ese país para identificar una contraparte local para la ejecución del proyecto, no ha sido posible establecer convenios formales con algunas de las instituciones, que inicialmente IPRA consideraba que ofrecían posibilidades. Establecimos (entre muchos otros), contactos con directivas de EAP, ICADE, PRR, CURLA, PDBL e IICA. (Ver siglas en el Anexo 10). Muchas de ellas manifestaron dificultad para garantizar la contrapartida nacional requerida que consistía en apoyo logístico y parte del tiempo de un funcionario que ya estuviera vinculado con la institución. Debido a estas dificultades IPRA propuso a un proyecto del IIRR-PRR, llamado IPCA (Investigación Participativa en Centroamérica), que fuera el gestor y coordinador de las futuras acciones en este país. El PRR se interesó en asumir este rol; ya estaba aplicando la metodología y también deseaba reforzar su método y aumentar su radio de acción.

IPCA y el CIAT planearon las diferentes actividades para la ejecución del proyecto en Honduras. Se han realizado el Curso I y tres seguimientos en los cuales los 19 participantes han mostrado un vivo interés. Los capacitadores del CIAT han visitado casi todos los veintiocho CIAL organizados por 15 instituciones y encontrado que la mayoría están aplicando la metodología y realizando su investigación de manera satisfactoria. Estos CIAL investigan sobre materiales genéticos; abonos verdes y orgánicos; y manejo integrado de plagas para el mejoramiento de sus cultivos básicos.

### Colombia

Aunque el proyecto ha encontrado en Colombia un tanto difícil identificar instituciones dispuestas a asumir la contrapartida en investigación participativa en agricultura, desarrolló un Curso I para dar a conocer mejor la metodología CIAL invitando participantes potenciales y capacitando 35 participantes (ver Tabla 1).

Actualmente, el proyecto trabaja en Colombia principalmente con instituciones gubernamentales como CORPOICA y algunas ONG's. Nos ha llamado particularmente la atención el interés que la metodología despertó en CORPOICA, entidad gubernamental de investigación que opera a nivel nacional, quien ha organizado 15 CIAL en tan solo un año después de recibir la capacitación, asignando recursos propios para ello. CORPOICA desea ahora ampliar la masa crítica capacitada y consolidar la capacidad institucional para replicar la metodología a partir de algunos capacitados que han demostrado especial interés y habilidades para desempeñarse como capacitadores.

Otras organizaciones gubernamentales con las que trabaja el proyecto en Colombia, son las Unidades Municipales de Asistencia Técnica Agropecuaria (UMATAS), encargadas de planear y dar asistencia técnica agropecuaria a nivel rural. Estas entidades están utilizando la metodología CIAL, adaptándola a sus objetivos específicos de trabajo.

Por el contrario, no ha sido fácil trabajar con las universidades, pero el proyecto está organizando foros y charlas con estudiantes y profesores con el fin de vencer algunas barreras institucionales, como se analiza más adelante.

En el proyecto "Plan de Modernización de la Yuca", financiado por el Ministerio de Agricultura, ICA, CORPOICA y CIAT (1995-1997), se han establecido 5 CIAL llamados "Comités de Desarrollo Tecnológico"- CADET, a través de los cuales los agricultores evalúan tecnologías. Se encuentra en

marcha la validación de tecnologías y el desarrollo de otras, por productores de yuca de la Costa norte Colombiana.

Uno de las principales dificultades encontradas en el trabajo con las instituciones es la falta de continuidad laboral de los funcionarios entrenados. Esto ocasiona una pérdida grande de recursos humanos y económicos que obligan a comenzar permanentemente los procesos de entrenamiento. Es además importante, incluir como producto final de los entrenamientos un plan de aplicación del aprendizaje en las áreas que se están trabajando, con el propósito de establecer fases posteriores de seguimiento y un presupuesto propio que garantice el logro de los objetivos.

### **Ecuador**

La implementación del proyecto se hace en este país con el IIRR y FLACSO, con quienes el CIAT ha formalizado un convenio dentro del cual se capacitaron dos personas de IIRR para iniciar el proceso de capacitación amplio. Luego se planeó y realizó un Curso I, para 25 participantes de 17 instituciones. Después del entrenamiento fueron organizados cinco (5) CIAL.

Durante los primeros meses de 1997 los capacitadores del CIAT tuvieron una reunión con las personas entrenadas para comprender mejor las razones institucionales o de otro tipo, por las cuales algunos de ellos no estaban aplicando la metodología. Encontraron que algunas instituciones que recibían del Estado una parte importante de recursos para su funcionamiento, estaban a punto de cierre por cancelación o recortes presupuestales drásticos debido a la difícil situación que vivió el país durante la administración Bucarán.

FORTIPAPA (Programa Nacional de Investigación de la Papa), del Ecuador fue uno de los programas con los cuales IPRA dio los pasos iniciales para sacar la metodología CIAL del área piloto en el Cauca, Colombia, al escenario internacional, capacitando sus directivas y algunos investigadores convertidos hoy en elementos claves de la multiplicación de la metodología al interior del sistema nacional de investigación y extensión agrícola del país.

Teniendo en cuenta la fase preliminar por la que atravesaba, FORTIPAPA comenzó incorporando gradualmente componentes de la metodología, tales como el diagnóstico participativo y la evaluación de tecnología, en sus ensayos regionales. Estas actividades las realizó no solo con agricultores sino con todos los usuarios de su programa a saber, agricultores, intermediarios y consumidores; adaptando cuando fue necesario las técnicas y formatos. En la actualidad, FORTIPAPA cuenta con cuatro CIAL en zonas estratégicas para el programa, que están haciendo importantes contribuciones a sus investigaciones, reduciendo de manera importante la duración de estas, el tiempo requerido para la selección, lanzamiento y adopción de nuevas variedades de papa y por ende los costos implicados en todo esto.

El paso siguiente de FORTIPAPA, apoyando la propuesta de los mismos agricultores será la ampliación de una masa crítica de capacitados en la metodología CIAL para extenderla al resto de programas de cultivos dentro del INIAP, lo cual se propone hacer a partir de 1.998 con el apoyo de IPRA.

### **Nicaragua**

En 1996, PASOLAC (Proyecto de Agricultura sostenible para las Laderas Centroamericanas financiado por COSUDE), convocó una reunión de todas las entidades, incluyendo a IPRA del CIAT, que decían estar utilizando métodos participativos en agricultura, con el propósito de compartir sus trabajos. Se llegó a la conclusión de que consideraban importante aprender la metodología CIAL e inicialmente participaron 17 funcionarios de 10 instituciones en el Curso I. Debido a la modalidad, utilizada por PASOLAC, de convocar entidades antes de concretar un convenio y compromisos por un año, todavía no

hay convenios establecidos con estas entidades; solo acuerdos verbales bajo los cuales se viene ejecutando la capacitación. Se evaluaron los resultados de la capacitación en 1997, concluyendo que la falta de una preselección clara y de un convenio formalizado por escrito - tal como se hizo en otros países -, habían afectado la adquisición de un compromiso real con los CIAL formados. No obstante, en siete casos lograron resultados muy importantes en la formación de CIAL fuertes y autónomos.

## **Brasil**

La solicitud inicial para la organización de CIAL en Brasil, surgió del Proyecto Fitosanitario da Mandioca (PROFISMA), financiado por UNDP, en el cual trabajan colaborativamente el CIAT, EMBRAPA y el IITA desarrollando tecnologías para el manejo integral de plagas y enfermedades en yuca, cubriendo seis estados del nordeste brasileño (Ceará, Bahia, Pernambuco, Paraíba, Alagoas y Sergipe) y cinco países centro Africanos. Es importante notar que todos los costos, incluyendo el aporte IPRA, han sido financiados por el UNDP.

El apoyo de IPRA fue inicialmente solicitado para la parte Brasileña del proyecto de yuca, donde se quiso involucrar agricultores para construir con ellos una agenda investigativa que tuviese en cuenta sus prioridades en cuanto a los problemas de MIP en yuca. A finales de 1996 y después de dos evaluaciones, el UNDP recomendó a la parte africana del proyecto introducir también la metodología CIAL que en Brasil tomó el nombre de Comités de Pesquisa Agrícola Local (COPAL).

A la fecha, han sido capacitados en Brasil 70 investigadores y extensionistas (ver Tabla 1) participantes en el proyecto PROFISMA, procedentes de 15 entidades gubernamentales y privadas de investigación y de ONGs relacionadas con ellas. Han sido organizados 26 CIAL distribuidos en seis Estados, de los cuales 10 han sido creados por iniciativa y con recursos propios de las entidades participantes.

Han sido desarrollados además, dos seminarios de sensibilización a investigadores y directivos de EMBRAPA/CNPMF en Cruz Das Almas, sede del Proyecto PROFISMA y se ha monitoreado en campo la aplicación de la metodología por parte de los capacitados.

Los costos de viajes y de la capacitación hecha por IPRA dentro del Proyecto PROFISMA han sido financiados por el UNDP. En la Tabla 4 aparece una síntesis de las actividades desarrolladas en Brasil entre 1994 y 1996.

A diferencia de los otros países, el Curso I, fue dictado en Brasil por etapas, con aplicación inmediata en el campo de los conocimientos adquiridos por los participantes.

El proyecto PROFISMA cuenta hoy con un grupo de técnicos e investigadores en seis estados del nordeste brasileño que han demostrado buenas capacidades para organizar, apoyar y facilitar la autogestión de los COPAL (CIAL) así como para monitorear y evaluar su desarrollo. Algunos de ellos muestran además buenas habilidades para convertirse en multiplicadores de la metodología, dentro y fuera de las entidades donde trabajan, aunque no han sido aún capacitados para este propósito.

Además de la capacidad local de los extensionistas e investigadores, quedan en las comunidades participantes en el proyecto PROFISMA, 26 Comités de Investigación Agrícola Local COPAL. A través de ellos, hemos comprobado que esta metodología puede ser instalada rápidamente en ese país, por el interés y motivación que despertó tanto en los investigadores y extensionistas como en los agricultores y en las entidades gubernamentales y no-gubernamentales.



Tabla 4. Actividades de capacitación en la metodología CIAL realizadas en Brasil dentro del Proyecto PROFISMA (MIP)

Eventos	Año	Duración	Tema	Participantes (no.)
Sensibilización	1994	2 horas	Marco conceptual	40
Curso	1994	10 días	Diagnóstico	30
Curso	1995	10 días	Planeación	28
Seguimiento	1995	10 días	Acompañamiento CIAL	18
Curso	1996	10 días	Evaluación/retroinformación	30

La fusión del trabajo de investigadores de las entidades participantes con el trabajo de los extensionistas en el contexto de aplicación de la metodología CIAL, demostró avances importantes. Todavía falta un camino largo por recorrer especialmente al interior del CNPMF que tiene ya "en casa", frente a sus ojos el mejor escenario natural de sensibilización: Los COPAL. Queda ahora en las manos de ese centro, definir una estrategia para que sus investigadores se encuentren con los COPAL; no tanto con el fin de demostrar a los agricultores las bondades de la tecnología allí desarrollada, sino de comprender las prioridades de los productores, experiencia nunca antes vivida por muchos de ellos.

Como resultado de todo lo anterior, surgen en Brasil propuestas de productores, investigadores, empresas estatales de investigación y extensión que han conocido el trabajo y ahora buscan financiamiento para extenderlo a otras entidades y cultivos por solicitud de los agricultores y convencimiento propio.

Hoy en las comunidades donde existen COPAL (CIAL), encontramos que con frecuencia los agricultores están interesados en ampliar sus investigaciones a cultivos diferentes a la yuca y ofrecen a las entidades de investigación y extensión participar activamente en la identificación de sus prioridades de investigación; en la planeación, manejo y evaluación de sus ensayos solicitando apoyo técnico en ciertos momentos de sus trabajos.

En varias comunidades participantes, se han generado procesos organizativos a raíz de la existencia de los COPAL (CIAL). Un aprendizaje entre muchos, que hemos obtenido de esta experiencia fue la rapidez con que los agricultores del nordeste descubrieron la importancia de la investigación participativa para mejorar su producción y por ende su producto final; la harina de yuca. De manera muy clara y con la sencillez que los caracteriza los agricultores del nordeste ligan como parte de un todo inseparable, la investigación, la producción, la transformación y por ende la comercialización de la yuca su principal cultivo generador de ingresos, dando con esto una lección a las entidades que por su parte tienden a especializarse en solo uno de estos componente, dificultándoseles así comprender la relación de las partes con el todo.

Para el Centro Nacional de Pesquisa em Mandioca e Fruticultura (CNPMF), la experiencia de tener por la primera vez en su interior un proyecto con énfasis en la participación de los productores le ha permitido saber por ejemplo, que a solo 15 minutos de allí existen comunidades cultivadoras de yuca (donde ahora hay COPAL (CIAL), que desconocen y por tanto no ha podido aprovechar absolutamente nada de la tecnología producida por el CNPMF, en más de 20 años de existencia del Centro en este lugar. El CNPMF encontró también, que no tenía tecnología de respuesta a las prioridades de los agricultores identificadas en algunos diagnósticos participativos y quedaron sorprendidos del compromiso de los COPAL (CIAL) con las investigaciones definidas por ellos mismos, cuando ante el vacío de respuesta de

la entidad de investigación, se organizaron y ellos mismos hicieron la búsqueda de los materiales necesarios para sus ensayos, llevándolos y plantándolos para sorpresa de técnicos e investigadores que se habían limitado a informarles que el Centro no disponía de los materiales.

El CNPMF conoció a través del diagnóstico participativo con los COPAL (CIAL), la preocupación de los agricultores por la pobreza de los suelos y que ciertos problemas que los investigadores consideraban erradicados, estaban de nuevo a la orden del día en las parcelas de los agricultores siendo la causa principal de la pérdida de sus cultivos. Hoy el Centro invita agricultores para que evalúen tempranamente en campo y en la estación las tecnologías en desarrollo; los investigadores básicos comienzan a interesarse por saber qué piensan los agricultores; se reorientan objetivos de investigación y otros proyectos como uno de mejoramiento financiado por IFAD a raíz de los resultados observados, muestra interés por utilizar la metodología CIAL. Aún falta mucho por lograr aunque se cuenta ya con pleno reconocimiento de la importancia del método por parte de las directivas del CNPMF.

### **Bolivia**

En Julio de 1996, se logró la capacitación en la metodología CIAL a un grupo de técnicos y a las directivas del Programa Nacional de Investigación de la Papa (PROINPA), adscrito al Instituto Boliviano de Tecnología Agropecuaria (IBTA). El Curso I, fue precedido por un taller en Cochabamba sobre evaluación participativa por productores, donde tomaron parte investigadores de PROINPA, CARE, la Universidad de San Simón (Facultad de Agronomía), CEDEAGRO y CIAT de Santa Cruz de la Sierra. En 1995 se había formado un capacitador en la metodología a través de una capacitación en servicio en CIAT.

En PROINPA (un proyecto de investigación básica en papa), ha habido cambios importantes en la actitud de sus investigadores, a raíz de la participación de los productores en la investigación. Hoy se acepta a su interior por ejemplo, que las tecnologías no solo deben buscar mejorar rendimientos (ver Anexo 8, para publicación de la Universidad de San Simón de Cochabamba al respecto); y han incorporado de manera sistemática la evaluación por productores dentro de sus ensayos y el apoyo a los CIAL como parte de sus planes operativos anuales.

PROINPA lidera actualmente la difusión de la metodología CIAL en Bolivia organizando inicialmente talleres cortos sobre evaluación participativa en Cochabamba, La Paz y Tarija, contando con el apoyo de IPRA en cuanto a materiales de capacitación. Adelanta un trabajo importante con la Universidad de San Simón de Cochabamba con quien ha hecho un acuerdo para que personal de PROINPA capacitado y trabajando con los CIAL desarrolle talleres sobre la metodología CIAL regularmente dentro de las cátedras de investigación y extensión en la Facultad de Agronomía y se han desarrollado los componentes teóricos y las prácticas en la Estación Experimental de Toralapa perteneciente a PROINPA.

La Universidad de San Simón de Cochabamba aprobó la cátedra de investigación participativa como materia electiva en investigación y extensión a partir de septiembre de 1997.

En junio de 1997, se hizo una reunión de seguimiento en Cochabamba a las personas que tomaron parte en el curso del año 96 y posteriormente se aplicó el formato de evaluación para "seguimiento a los CIAL", localizados en el departamento de Cochabamba. El seguimiento permitió detectar algunas situaciones tales como:

- Faltaba que los técnicos implementaran el uso de las cartillas CIAL con los agricultores.
- Se requería mayor disponibilidad de tiempo por parte de los técnicos para atender los CIAL.

- Los técnicos no motivaban a los agricultores para que llevaran registros completos de sus actividades.
- Faltaba que las entidades asignaran dentro de sus gastos dinero para la "Caja Menor" o Fondo CIAL.

Una lección importante aprendida durante el segundo año de trabajo en Bolivia, ha sido la relevancia que tiene el seguimiento posterior al curso para reforzar conocimientos y destrezas. En efecto, después de la capacitación aparecen dificultades muy específicas de cada situación, que van surgiendo en el camino y que los participantes que estuvieron en el curso no pueden de entrada resolver una vez se enfrentan a la práctica.

- **Expansión de los CIAL**

Desde la creación de los primeros cinco CIAL en Colombia, a finales de 1990 (zona piloto del proyecto), los CIAL han venido multiplicándose hasta alcanzar un total 202 al terminar el primer semestre del año 1997, expandidos en ocho países latinoamericanos como muestra la Tabla 5.

De los 202 CIAL organizados hasta julio de 1997, hay un 20.29 % (41), que figuran como "inactivos"; es decir, que han pasado más de un ciclo productivo sin tener actividades propias de ellos (Tabla 6).

Tabla 5. Difusión de los Comités de Investigación Agrícola Local (CIAL). Diciembre de 1990 – Julio de 1997.

Año	País	CIAL organizados
1990	Colombia	7
1991	Colombia	18
1992-93	Colombia	32
	Ecuador	7
	Perú	5
1994	Brasil	19
	Colombia	10
	Bolivia	5
1996	Brasil	8
	Honduras	28
	Ecuador	4
	Nicaragua	2
	Colombia	15
1997	Bolivia	5
	Ecuador	7
	Nicaragua	5
	Bolivia	1
	El Salvador	14
	Colombia	10
<b>Total</b>		<b>202</b>

Tabla 6. Estado de los CIAL a Julio de 1997.

País	Activos		Inactivos		Total CIALs
	No.	%	No.	%	
Colombia	74	80.43	18	19.56	92
Ecuador	9	50	9	50	18
Perú	0	0	5	100	5
Bolivia	11	100	0	0	11
Honduras	25	89.28	3	10.71	28
Nicaragua	5	71.42	2	28.57	7
El Salvador	14	100	0	0	14
Brasil	23	85.18	4	14.81	27
<b>Total</b>	<b>161</b>	<b>79.70</b>	<b>41</b>	<b>20.29</b>	<b>202</b>

Las causas de la inactividad de los 41 CIAL que muestra la tabla, están siendo estudiadas, sin embargo, podemos ya mencionar algunas de ellas:

- **Paternalismo institucional** que regala o paga por todo (semillas, dinero, jornales, Herramientas, etc.), a cambio de una participación pasiva de beneficiarios potenciales, cuyo resultado es una actitud cada vez más dependiente, en las comunidades. Esto contradice la meta de autosugestión y de participación "activa" implícitas en la metodología CIAL.
- **Activismo de los integrantes del CIAL** por excesiva presencia institucional en el área donde se encuentra el CIAL.
- **Comunidades demasiado pequeñas** o de distribución habitacional demasiado dispersa.
- **Cambios súbitos en políticas del gobierno** que retira por ejemplo recursos financiero a ONGs que apoyan los CIAL.
- **Falta de estabilidad laboral** de los técnicos que apoyan los CIAL.
- **Conflictos entre familias en la comunidad** que afectan la estabilidad de los integrantes del CIAL.
- **Condiciones de inseguridad** afectan los desplazamientos y el apoyo de los técnicos a los CIAL.
- **Finalización de proyectos que apoyan los CIAL.** Fue el caso del Perú donde el

Proyecto SEINPA financiado por COTESU, terminó y el instituto Nacional (INIA) que debía continuar apoyando las actividades de SEINPA no lo asumió, quedando el trabajo sin ningún apoyo institucional.

- **Condiciones climáticas adversas** (ej. fenómenos del niño en 1.994 y 1997).

### **Uso de la Metodología en otros Proyectos y Programas**

#### **(1) *Proyectos financiados por IFAD***

El proyecto IPRA ha venido desarrollando actividades de investigación participativa (básicamente de diagnóstico y evaluación de tecnología) en Brasil, en el desarrollo de germoplasma de yuca, dentro de los Programa de Mejoramiento de Yuca del CIAT, del CNPMF de EMBRAPA y de EPAGRI, en proyectos financiados por IFAD. Esta metodología, utiliza elementos del método CIAL y es conocida como Investigación Participativa en Mejoramiento en Yuca-IPMY.

La inclusión de la investigación participativa en la selección de nuevas variedades de yuca por agricultores en el caso de Brasil, fue propuesta por el proyecto IFAD, basándose fundamentalmente en una estrategia de entrenamiento.

- **Estado de Santa Catarina**

En este Estado, el proyecto “Desarrollo de Germoplasma de yuca para Condiciones de Subtrópico”, se llevó a cabo un entrenamiento en EPAGRI, Estación Experimental de Urusanga, (1994 / 1995). Fueron capacitados 15 extensionistas y 45 productores. Se obtuvo un libro de campo que permite la toma de criterios de selección y datos agronómicos que interpretan de manera técnica la información subjetiva de los productores. Además, se elaboró un vídeo didáctico, para enseñar algunas de las técnicas usados en evaluaciones participativas. Finalmente la metodología participativa se sigue aplicando en el programa de mejoramiento de EPAGRI (fitomejorador EPAGRI, Rubens Marschalek).

- **Estados de Bahía, Pernambuco y Ceará**

En otro proyecto financiado por IFAD, llamado “Investigación Participativa en Mejoramiento en Yuca,” en el semiárido del nordeste del Brasil, el entrenamiento involucró al CNPMF, y entidades como CPATSA, EBDA, IPA, y EPACE. Este proyecto busca desarrollar germoplasma de yuca para condiciones de semiárido de América Latina, Asia y Africa. Fueron entrenados 17 investigadores y extensionistas y 85 productores.

En el primer ciclo, se establecieron 17 ensayos participativos en igual número de comunidades, en los estados de Bahía, Pernambuco y Ceará. Se obtuvo un libro de campo como instrumento de evaluaciones agronómicas y subjetivas; un vídeo como material de enseñanza para futuros entrenamientos y la introducción de la metodología como una etapa más en el proceso de selección de variedades de los mejoradores. Se cuenta ahora con una base amplia de datos para su análisis.

En el semiárido brasileño, la metodología de IPMY se ha implementado en los Estados de Bahía, Pernambuco y Ceará, bajo la coordinación del Fitomejorador de CNPMF. Se cuenta con datos de tres años para análisis estadístico, lo cual permitirá decidir sobre las nuevas variedades que entrarían en la fase de prelanzamiento (posible liberación en 1-2 años). El trabajo IPMY cuenta con el respaldo de los directivos de investigación, demostrado así por ser uno de los nominados por EMBRAPA para adjudicarle una distinción. (Anexo 2).

Estamos en un IPMY avanzado al cual sería interesante establecerle un seguimiento en épocas de evaluación, que contribuya con una buena calidad de la información además de un refinamiento de algunos aspectos de la metodología. Sería importante apoyar el Programa de Mejoramiento del CNPMF con entrenamientos dirigidos a su personal en los tres Estados, para que en corto plazo se conviertan en capacitadores en los tres estados.

A pesar de no tener recursos la Investigación Participativa en Mejoramiento en Yuca (IPMY) en el subtropical, cuenta con un equipo de investigadores entrenados, y pruebas participativas en evaluación. Ahora, las entidades de investigación buscan nuevas estrategias para optimizar los recursos que invierten y al parecer IPMY se puede considerar como una de ellas.

La metodología IPMY, incorpora elementos del método CIAL como el diagnóstico restringido, la planeación, la evaluación, y la retroinformación, pero no incluye la organización de grupos de agricultores en forma permanente. Etapas posteriores como la difusión y la adopción podrían aumentar su probabilidad de ocurrencia con la metodología. IPMY ofrece varias alternativas de análisis de la información y un potencial muy grande de aplicación a cualquier tecnología, lo cual permite establecer ciclos de análisis de la retroinformación en una forma sostenible. (Para ejemplo, de la investigación participativa aplicada a estudios de fitopatología, (ver Anexo2), Híbridos de Mandioca Resistentes a Superbrotamiento). El resultado más importante obtenido ha sido comprobar que IPMY es una metodología adaptable a condiciones de semiárido y subtropical, siguiendo básicamente cuatro pasos; diagnóstico, planeación evaluación, y retroinformación. Después de varios ciclos de repetir este procedimiento, es posible analizar los datos con alternativas sencillas manuales y procedimientos rutinarios de SAS.

El trabajo de Investigación Participativa aplicado en Mejoramiento de Yuca (IPMY), es ahora un procedimiento rutinario en la selección de variedades del programa de mejoramiento en el CNPMF. Con la participación de productores de los Estados de Bahía Pernambuco y Ceará, se ha establecido un proceso de retroinformación que permite en 1-2 ciclos recomendar nuevas variedades de yuca seleccionadas conjuntamente por investigadores y productores del semiárido. Sería interesante programar seguimientos, como apoyo al trabajo que realiza Mejoramiento de Yuca del CNPMF, participando en documentación de los escritos generados.

Para el análisis de la información obtenida, se hizo una capacitación al equipo del Programa de Mejoramiento del CNPMF, incluyendo la revisión de datos (libros de campo conteniendo información de 3 años), análisis descriptivo y la técnica de orden de preferencia (simular la selección de alternativas tecnológicas con alta probabilidad de aceptación, sobre la base de evaluaciones participativas).

Se analizó con el equipo la importancia de establecer grupos de variedades con buena, intermedia, y baja aceptación. Se realizó una matriz de frecuencias (número de veces que la variedad ocupó una determinada posición); luego calculamos la frecuencia relativa y se elaboraron gráficas. Este procedimiento manual se ha convertido en una importante herramienta para decidir acerca de lo que se debe seguir evaluando y aquello que deberá ser reemplazado en cada ciclo (ver Figura 1).

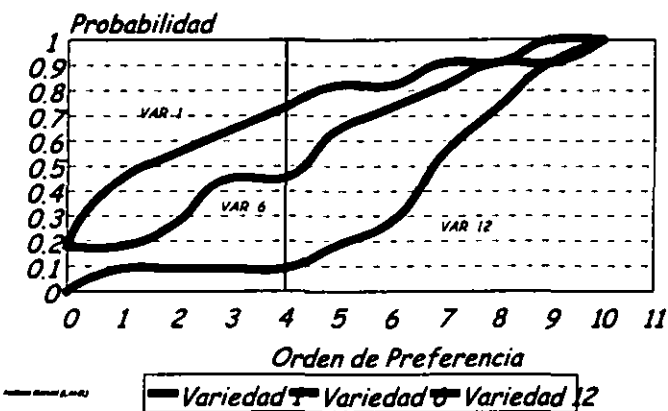
Aceptando que el orden de preferencia lo componen tres rangos: 1-4 variedades con mayor aceptación, 5-8 variedades de aceptación intermedia, y de 8 a 11 variedades rechazadas por los agricultores; fue realizado el análisis siguiente: la muestra poblacional tomada en semiárido (tres variedades en 11 localidades), indica que la variedad No.1, ocupó cualquiera de las primeras 4 posiciones según el 70 % de los agricultores, mientras que la variedad No.12, fue ubicada en este mismo rango solamente por un 10% de los productores. La variedad No. 6, mostró una aceptación intermedia entre las dos anteriores. Con este procedimiento, hemos establecido un sencillo método de retroinformación de

fácil análisis, el cual nos permite sustituir las tecnologías rechazadas por los productores por otras que tengan perfiles similares a las de mayor aceptación. Cada investigador apoyado en este análisis, puede así, establecer sus propios parámetros de decisión para seguir probando o reemplazando tecnologías en prueba.

Figura 1.

### Simulación en la Selección de Var

Semiárido de Brasil, mayo /1997



**Entrenamiento en Itajai (Santa Catarina)**  
 En este entrenamiento la audiencia estuvo conformada por 11 extensionistas que hacen parte del grupo que comenzó su capacitación en 1993 y 2 estadísticos a nivel de PhD. Interesados en conocer las alternativas de análisis de la metodología. Este grupo, por su propia iniciativa ha continuado los trabajos IPMY y en su mayoría han asistido a todo el proceso de capacitación.

Agenda desarrollada:

- Orden de preferencia (análisis similar al realizado en el semiárido, práctica de campo).
- Discusión de los análisis estadísticos.

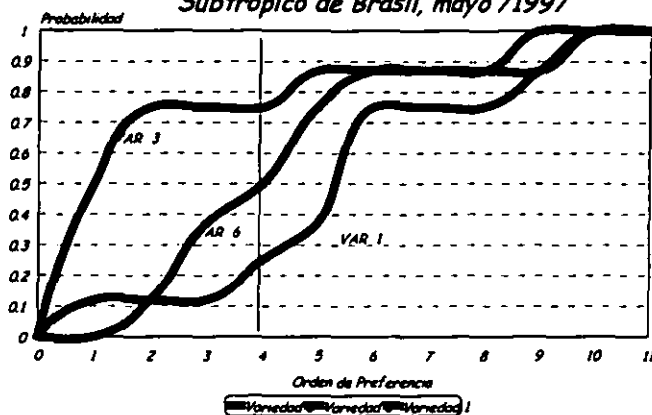
La Figura 2, muestra el resultado del análisis obtenido con una muestra de datos del subtrópico. En este caso, alrededor de un 75% de los productores ubicaron la variedad No. 3 en el rango 1-4; mientras que solo un 25% de esta misma población ubicó la variedad No.1 en este mismo rango. Así se pueden establecer límites de aceptación representados por variedades de mayor, intermedia y baja aceptación. En un trabajo de IPMY avanzado, sería interesante cruzar esta información con los criterios que sustentan cada una de las posiciones determinando el perfil de la variedad que requiere el productor. Luego podríamos tomar la información agronómica y establecer rangos de aceptación de parámetros cuantitativos tomados por el investigador.



Figura 2. Resultado del Análisis obtenido con una muestra de datos del subtrópico de Brasil, Mayo de 1997

## Simulación en la Selección de Va

Subtrópico de Brasil, mayo /1997



Estos análisis son realizados con calculadoras de bolsillo, pueden ser también ejecutados con ayudas en computador a través del paquete LOGIT Análisis de SAS. En este caso, podemos encontrar las diferencias estadísticas en las preferencias de las tecnologías evaluadas por los productores, estableciendo intervalos de confianza.

Finalmente, fue discutida la importancia de las alternativas para el análisis estadístico de toda la información generada por IPMY. El procedimiento de transformación de escalas, construcción de matrices, componentes principales, y cluster; fue considerado como de gran potencial para ser aplicado en IPMY, como también en otros trabajos participativos con otros cultivos (pasturas, y hortalizas).

Fue comentado que la investigación participativa, puede llegar a ser una de las respuestas que esperan las Estaciones Experimentales frente al cuestionamiento de algunas investigaciones tradicionales realizadas en EMBRAPA.

### (2) *Introducción de la metodología al proyecto del Banco Interamericano de Desarrollo-BID, en Sergipe, Itabahia.*

El Estado de Sergipe en el nordeste del Brasil, es vecino de los Estados donde existen COPAL (CIAL) dentro del proyecto PROFISMA financiado por UNDP. Agricultores y funcionarios de distintas entidades de Sergipe, conocen la metodología CIAL han visitado los trabajos de investigación participativa, observado sus evaluaciones, diagnósticos y demás actividades y están estudiando la posibilidad de incorporar esta metodología como el componente básico de participación de los pequeños productores dentro del componente agrícola parte substancial de un proyecto de desarrollo rural más amplio llamado PROSERTAO. Para conocer la parte conceptual de la metodología, solicitaron a IPRA a través del CNPMF, un curso sobre la metodología de diagnóstico participativo al cual asistieron 35 representantes (básicamente directivas y coordinadores de proyectos), de las distintas entidades participantes en PROSERTAO.

Posteriormente, fue solicitado entrenamiento para técnicos que trabajarían con el Programa de Mejoramiento de yuca del CNPMF, en el proyecto PROSERTAO. La audiencia para este entrenamiento, estuvo compuesta de 24 extensionistas, capacitados en conceptos básicos de Investigación Participativa y con interés en IPMY para comenzar a evaluar variedades tolerantes a pudrición de raíces. En el trabajo de campo se realizó un diagnóstico restringido al cultivo de yuca determinando las prioridades para los agricultores de Frei Paulo. Los productos del entrenamiento fueron:

- Entrevistas con productores (vídeo didáctico realizado en Brasil).
- Evaluaciones abiertas.

- Criterios de selección.
- Tabulación de la información.
- Libro de campo, y
- Simulación de la selección de tecnologías con métodos manuales de análisis.

Los profesionales se mostraron interesados en incluir la metodología en el proceso de selección de variedades, buscando alternativas viables para los productores de la región. Los grupos, trabajando separadamente, encontraron como resultado del diagnóstico que pudrición, variedades y cultivos asociados, eran la prioridad para los cultivadores de yuca en Frei Paulo.

Sería conveniente establecer un acompañamiento más de cerca para este grupo de profesionales, asistiendo a evaluaciones programadas durante el ciclo del cultivo (programación de nuevos entrenamientos específicos a las tres las fases de evaluación).

Para decidir si una tecnología nueva es una alternativa aplicable a las formas habituales de producción agropecuaria, es necesario comprender las necesidades humanas que se intentan satisfacer, además de considerar los aspectos técnicos. En este sentido, la metodología de investigación participativa permite entender las necesidades de los productores y en consecuencia, la aceptación o rechazo de las alternativas tecnológicas que evalúan. Sabemos también, que con evaluaciones participativas podemos obtener productos como la autogestión de grupos organizados de productores (CIAL); procesos de retroinformación a la investigación (ejemplo: IPMY) incrementando la difusión y la adopción de nuevas tecnologías, y autogestión con grupos organizados de productores en evaluaciones conducidas por investigadores, dentro de sistemas de producción (ej.: los CADET en la Costa Norte de Colombia).

### *(3) Desarrollo de un proceso de incorporación del Método CIAL por otras instituciones.*

Podemos observar por lo menos tres tendencias en el proceso actual de incorporación del método CIAL por otras instituciones.

Primero, donde existe un gran número de ONG interesadas en la autogestión de las comunidades para apoyar a los CIAL (Caso Honduras) ha sido fácil de formar los comités y lograr un excelente nivel de éstos en su proceso de autogestión.

Pero en estos casos, falta liderazgo y capacidad institucional de apoyar la capacitación a otros profesionales, y no ha sido fácil vincular ONGs con otro tipo de institución – como por ejemplo, las Universidades – con esta capacidad.

Sólo en 1997 empezó a aparecer un liderazgo en este sentido, de la Universidad de San Simón de Cochabamba en Bolivia; y de Zamorano (Proyecto UNIR) en Honduras.

La segunda tendencia es donde el programa nacional o regional de extensión agrícola encuentra una respuesta a su insatisfacción con la investigación adaptiva y está utilizando el método CIAL para llenar este vacío (Caso PROFISMA, noreste de Brasil; CORPOICA, Colombia). En estos casos, los CIAL son muy vulnerables a la inestabilidad del sector público, ya sea por el retiro de profesionales o financiero. A pesar de tener un fuerte apoyo institucional en el momento, no se puede predecir en esta fase del desarrollo del proceso de incorporación del método CIAL, si lograrán un nivel de autogestión sostenible.

Una tercera tendencia en el proceso de incorporación del método CIAL por otras instituciones, es el caso de los programas de investigación con deseos de obtener una mejor retroinformación de los productores sobre la aceptabilidad de nueva tecnología (Caso Mejoramiento de Yuca y CNPMF, Brasil). En este caso, la autogestión de los agricultores en grupos se pone en el segundo lugar frente al deseo de las

investigaciones de obtener una información de éstos; la formación de CIAL y apoyo a los CIAL es mínima.

Es difícil todavía, llegar a conclusiones finales sobre el proceso de incorporación de la metodología. En el año 1998, el estudio de evaluación por proyecto aportará datos que permitirá comparar los logros y beneficios para los productores, obtenidos a través de los diferentes procesos de incorporación del método CIAL.

## **EVALUACIÓN**

### **Entrevistas Grupales de Seguimiento a los CIAL**

IPRA desarrolló un formato (Anexo 3), que permite a un observador externo evaluar el desarrollo de los CIAL en su aplicación de la metodología y como grupos, mediante encuentro con ellos. A continuación incluimos algunos ejemplos de la información que se obtiene durante el seguimiento a los CIAL.

#### **Seguimiento a los COPAL (CIAL) en Brasil**

En Brasil se hizo un primer seguimiento una vez transcurridos cuatro meses de plantados los primeros ensayos de los 18 COPAL (CIAL) iniciales.

Coincidiendo con el informe del Comité Consultor del UNDP (Report of the External Advisory Committee, August 22-25, 1995 pg. 4), "El componente de investigación participativa juega un papel fundamental en el Proyecto PROFISMA", produciendo los CIAL en menos de un año, un importante efecto sensibilizador a nivel de las instituciones, de productores y de los investigadores y extensionistas.

Atendiendo a la primera pregunta de evaluación de este proyecto, el seguimiento tiene el objetivo de evaluar "cómo ha sido adoptada y adaptada la metodología CIAL en las instituciones participantes". Para esto, aplica una encuesta semi-estructurada que permite evaluar el grado de autogestión que están logrando los CIAL; y sus avances en cuanto a su capacidad de investigar.

El seguimiento mostró que el COPAL (CIAL), tienen un proceso de autogestión en camino, lo cual permite el desarrollo de una capacidad local de investigar. Los COPAL que llevaban entre seis meses y un año de organizados eran más independientes del técnico, que aquellos más recientemente constituidos. Sin embargo, era clara en ambos casos (94%) la gran responsabilidad que habían asumido en cuanto a la toma de decisiones; así lo sentían igualmente las comunidades tal como lo demostraron con su presencia voluntaria en el momento del seguimiento. El 76% de los CIAL estaban avanzando bien en su proceso de autogestión no solo de parte de los cuatro representantes sino con mucho apoyo de las organizaciones de base al interior de las cuales fueron creados los CIAL (por ej. : de los socios de las Casas Comunitárias de Farinha).

Fue notoria la diferencia entre los dos CIAL donde los ensayos no habían sido plantados con la participación de los agricultores, por fallas de algunos investigadores; y los CIAL donde los agricultores participaron activamente en definir sus ensayos. Estos últimos productores (70.59%), tenían claridad sobre cuáles eran los objetivos de sus ensayos y qué buscaban con ellos; podían identificar en campo los diferentes tratamientos (82%), explicar bien el concepto de testigo, repetición y riesgo. Estaban compartiendo regularmente sus avances con sus comunidades y con vecinos de otras comunidades. En un 90% de los COPAL, se había encontrado muy útil el uso de las cartillas trabajadas con el técnico, y en el 50% de las comunidades las cartillas ya eran de conocimiento casi general porque el CIAL se había encargado de divulgarlas o porque circulaban libremente por interés de la gente.

En un 55% de los CIAL se llevaban registros de actividades y el Diario del Ensayo por parte de los agricultores. En los otros, se presentaban algunas dificultades porque la persona elegida como secretaria no sabía escribir bien o porque no había nadie en la comunidad que supiera hacerlo. Sin embargo, la gente recordaba la información solicitada y era fácil reconstruirla. En un 90% los técnicos e investigadores hacían también sus propios registros.

Los CIAL evaluaron también el apoyo que recibieron en su ensayo por parte de los técnicos e investigadores. En un 80% los CIAL reconocieron que había mayor responsabilidad y cumplimiento a las reuniones y compromisos de parte del personal profesional (en el cual participan funcionarios de 10 entidades), en comparación con el personal de otros programas que operan en el área. Los técnicos por su parte, expresaron que la respuesta y compromiso de los productores con sus investigaciones, producían en ellos un efecto de motivación y compromiso crecientes; y que su trabajo era mucho más eficiente y por tanto satisfactorio.

Aunque todavía se estaban dando ajustes en la composición de algunos CIAL en los que las comunidades encontraron que algunos de los miembros no estaban trabajando bien, en ningún caso se encontró por ejemplo manejo indebido de los recursos entregados por una sola vez y en su totalidad por PROFISMA (US\$500.00) a cada grupo. En esto las comunidades jugaban un papel importante de fiscalía social, pidiendo al CIAL regularmente un informe sobre gastos en las reuniones de la comunidad. Así, cualquier persona de la comunidad estaba enterada a cerca del uso de los recursos.

En el Anexo 4, puede verse una tabla resumen con los resultados de la aplicación del primer seguimiento a los CIAL de Brasil.

### **Seguimiento a los CIAL en Colombia**

En Julio de 1996, se aplicó en Colombia la encuesta de seguimiento al 46% (26) de los 56 CIAL existentes en el área piloto del proyecto; cinco años después de conformados los primeros CIAL. La información obtenida no ha sido completamente analizada porque se espera antes aplicar la encuesta al 54% de los CIAL restantes, diferenciando para propósitos de análisis entre CIAL maduros, intermedios y recientes.

La información hasta ahora obtenida, muestra por ejemplo que en un 62% los CIAL, son conscientes de los riesgos que implica investigar y por tanto, han asimilado bien la necesidad de comenzar investigando en áreas pequeñas, frente a lo cual el proyecto había encontrado cierta resistencia en los agricultores. Las comunidades por su parte son en su mayoría (85%) conscientes de que la decisión de tener un CIAL, ha sido de ellos principalmente en su deseo de comprometerse a participar en la búsqueda de alternativas para mejorar la agricultura local.

El 62% mostró claridad sobre el concepto de repetición; el resto tiene una idea bastante aproximada, lo cual es un indicador del grado de entendimiento del propósito de investigar entendida como ensayar cosas nuevas, desconocidas y por tanto que implican cierto grado de riesgo.

La evaluación identifica un proceso de autogestión bien sólido. El 44% de los CIAL entrevistados, reconoció una dependencia moderada de los técnicos; el 30% (los más antiguos) se sintieron con buena independencia de los técnicos y ya con capacidad para realizar sin su apoyo la mayor parte de las actividades de investigación excepto algunos pasos del diseño de los ensayos y el análisis estadístico de los resultados. El 25% (los más recientes), se sintió bastante dependiente de los técnicos.

Más del 60% de los CIAL, se ha reunido con la comunidad por lo menos una vez por ensayo para compartir con ella los resultados de estos.

La información obtenida, permite ver que los integrantes de los CIAL, con frecuencia deciden cambiar un integrante que no funcione bien, sin consultar con la comunidad que los designó y esperar que sea ella quien nombre el reemplazo. Esto tiene un aspecto positivo en cuanto el CIAL sabe quienes han venido acompañándolo de cerca y puede escoger entre ellos y agilizar el reemplazo. Pero también puede prestarse a favoritismos de amistad o de familia con alguien que no sea de la aceptación de la comunidad; y que esta no llegue a enterarse de quienes en un momento dado integran un CIAL.

Se encontró también, que las cartillas IPRA, destinadas a apoyar la capacitación de los CIAL no se utilizaban suficientemente para este fin; los agricultores con frecuencia cuidaban y guardaban este material por temor a ensuciarlo y los técnicos no tomaban el tiempo suficiente para trabajar las cartillas con el CIAL.

### **Seguimiento en los otros países**

En el año 1998, se propone aplicar la encuesta de seguimiento a los CIAL en los otros cinco países.

### **Auto evaluación por los CIAL**

Con la finalidad de permitir una evaluación de su desempeño por sí mismo en cada CIAL, IPRA ha diseñado varios formatos compilados en la Cartilla No.13 titulada "Guías para Conocer Nuestro Camino". A continuación presentamos una breve descripción de cada uno de ellos:

- **Registro de actividades:** En este formato tanto los agricultores de los CIAL, como los técnicos que los apoyan consignan todos los compromisos relacionados con el ensayo, lo cual permite evaluar su nivel de constancia en el seguimiento de los pasos del método CIAL al hacer sus ensayos. Ha sido poco utilizado por los agricultores.
- **Formato con Caritas:** Con este formato, el CIAL auto-evalúa su desempeño como grupo. Los técnicos tienden a no utilizar este procedimiento, debido a una falta de consciencia de la importancia del estado interno de cada grupo.
- **Diario del ensayo:** Es un instrumento que sirve para la planeación de los ensayos por parte de los CIAL. En él queda registrada la historia investigativa de la comunidad. Permite evaluar el grado de entendimiento de los resultados y del diseño experimental por parte del grupo. Los comités utilizan cuadernos y otras formas de apuntar, pero la mayoría reconocen la importancia de mantener algún récord de su trabajo en forma de un "diario".
- **Formato para la evaluación del ensayo:** Los miembros del comité recopilan allí las opiniones de otros agricultores invitados por ellos, para evaluar cada tratamiento o tecnología bajo prueba en el ensayo. Es fácil de usar, y por lo general los agricultores lo han llenado cuando el nivel de alfabetismo lo permite.
- **Hoja del ensayo:** el comité resume en ella los resultados de su ensayo con la finalidad de compartir la investigación con las entidades y con otros comités, para entrar información en la base de datos.
- **Encuesta a la comunidad:** Mediante esta encuesta se conoce qué impacto tuvo en la comunidad, la investigación realizada por el CIAL. Será aplicado por los CIAL en 1998.

## **Base de Datos**

Básicamente con el propósito de agilizar el intercambio de información entre los CIAL, se creó una base de datos que corre bajo el sistema D.O.S, con la información generada por las investigaciones de los diferentes CIAL. La información requerida para esta base de datos se recoge mediante formatos diligenciados por los técnicos-agricultores o técnicos.

La base de datos tiene un menú principal que da acceso a cada uno de los pasos que tiene la metodología con sus respectivas características a saber:

1. Datos generales del Comité
2. Diagnóstico
3. Experimento
4. Evaluaciones
5. Actividades
6. Informes

El menú principal tiene un sub-menú que da acceso a las tablas de toda la base de datos; obteniéndose así la información deseada.

Con esta herramienta, los técnicos y para-técnicos pueden suministrar información solicitada por cualquier comité o institución que lo desee. De esta manera, se socializa la información, siendo de gran utilidad en las regiones que lo requieran. Otro aspecto importante es la facilidad para su aplicación y manejo en cualquiera de las instituciones de los países donde se aplica la metodología. Requiere además, de poco espacio y memoria en las computadoras P.C.

## **Evaluación por las Instituciones**

A través de este tipo de evaluación, se busca determinar el grado de interés y compromiso que la metodología genera en las instituciones participantes, lo mismo que las dificultades o ventajas que estas ofrecen para la introducción y difusión del método CIAL

Un primer trabajo de este tipo fue realizado en Brasil en Marzo de 1.997, relacionado con las instituciones participantes en el trabajo con los COPAL (CIAL), impulsados a partir del proyecto PROFISMA del CNPMF de EMBRAPA. Para ello, fue elaborada una guía de discusión que los técnicos que apoyan los COPAL se encargaron de diligenciar con las directivas y colegas de sus respectivas instituciones. Una parte de esta guía se refería a la percepción de las instituciones sobre los usuarios (los COPAL en este caso) pero también la de estos últimos con respecto a las instituciones. Para esto, los técnicos adelantaron reuniones con los COPAL encontrando que estos últimos se habían a su vez reunido por iniciativa propia con todas sus comunidades y realizado con ellas dicha evaluación. Una vez realizadas estas evaluaciones, los técnicos de los cinco estados donde hay COPAL (CIAL) realizaron un Taller donde compartieron las respectivas evaluaciones, analizaron dificultades en común factores favorables y acordaron algunas pautas para el futuro trabajo con las instituciones.

Una de las limitaciones comunes encontradas en las instituciones brasileñas en el momento de esta evaluación fue el proceso de reestructuración que atravesaban implicando recortes presupuestales muy importantes; cierre de agencias en algunas regiones congelación de nuevas actividades y por supuesto despidos masivos y aumento de la carga laboral para el personal que quedaba. Por esto aunque había gran interés en las instituciones y algunas como la EBDA del Estado de Bahía habían planeado abrir a su interior una división de Investigación Participativa y cuenta con un excelente recurso humano ya capacitado en la metodología CIAL para hacerlo, no ha podido materializarlo.

La evaluación por las instituciones brasileñas mostró también gran interés de la mayoría de ellas por ampliar la metodología CIAL, a otros cultivos diferentes a la yuca como también lo habían manifestado los agricultores.

La evaluación institucional en Centro América ha sido realizada en Honduras (con Zamorano y con FEPROH), único país donde ya se aplicaron todas las fases de la metodología CIAL y comienza a hacerse con Nicaragua.

A la pregunta acerca de qué tanto se conocía la metodología CIAL en su institución, = Zamorano respondió que aunque el conocimiento de ésta continuaba un tanto localizado en el Departamento de Desarrollo Rural, la metodología se utilizaría en el Proyecto UNIR en las mismas comunidades en que han trabajado buscando extenderlo en cuanto fuera posible y manifestaron interés porque unas personas de las ya entrenadas se desempeñe como capacitador en el futuro. En cuanto a la institucionalización de la metodología, la expresaron como un interés a mediano plazo.

FEPROH por su parte, manifestó que la metodología CIAL era de amplio conocimiento en la institución. Encuentran la metodología, es sencilla y adoptable para promover procesos sostenibles. Consideran que la principal utilidad del método es la “poseer y transferir una herramienta metodológica que desarrolla procesos de generación de alternativas de solución a la problemática que obstaculiza mejores resultados en la agricultura sostenible”. FEPROH ha creado siete nuevos CIAL en 1997 por su propia iniciativa y recursos y prevé crear otros en el futuro. Esperan tener formado su propio capacitador y jugar un papel como difusores de la metodología y promotores de intercambio de experiencias entre las instituciones que están aplicando esta metodología en el área.

### **Estudios de Caso**

A través de los estudios de caso, se espera comprender los ajustes que necesitaría el método CIAL al llegar a determinados contextos culturales o sociales ( ej. campesinos sin tierra; los más pobres; los jóvenes o las mujeres).

Con los ejemplos a continuación ilustramos respuestas a las preguntas claves para la evaluación de este proyecto relacionado con la adopción de la metodología y el impacto de la tecnología investigada por los CIAL, a nivel de las instituciones y de la comunidad. En ellos puede verse que desde distintos caminos se causan impactos específicos a partir de la implementación de la metodología CIAL.

La pregunta relacionada con el impacto de la capacitación de capacitadores, no puede ser respondida en este momento, ya que esa fase aún no ha sido desarrollada. No incluimos en este punto ejemplos sobre Brasil, ampliamente mencionados anteriormente en este informe.

### **Ejemplos de CIAL, Departamento del Cauca, Colombia**

- **CIAL Portachuelo.** El problema prioritario de investigación identificado por la comunidad de Portachuelo, fue la falta de semilla de caña panelera y el deterioro de las variedades locales. Este es el principal cultivo generador de ingresos de la población. Desde su creación en 1992, el CIAL ha evaluado variedades de caña, seleccionando y multiplicando aquellas que han mostrado mejor adaptación, rendimientos más altos etc., y comienza a abastecer de material vegetativo a los socios de la microempresa local productora de panela que estaba a punto de quebrar por falta de caña para producirla. Otras comunidades vecinas se benefician ya de la semilla que este CIAL está produciendo.

Con frecuencia este CIAL organiza eventos de capacitación para técnicos de las UMATAS del municipio de Rosas y agricultores interesados, sobre los resultados de su investigación y las innovaciones que están introduciendo para el manejo del cultivo. Este CIAL hizo además, el trabajo de motivación y formación de un CIAL en una comunidad cercana (Portachuelo Alto) y apoya el desarrollo de sus actividades.

- **CIAL El Diviso.** Investiga principalmente en la evaluación de maíz, especializándose en la multiplicación y venta de semilla artesanal a las UMATAS de Almaguer, La Sierra, El Bordo, Rosas, Timbío y algunas ONG del Cauca (ver Estudio de Caso sobre este CIAL en el Anexo 5).

El maíz, básico en la alimentación familiar y en la alimentación de la mano de obra abundante durante la cosecha cafetera, había desaparecido casi por completo en la región. Después de cinco años de trabajo de este CIAL:

- El cultivo del maíz ha sido recuperado.
  - Hay amplia disponibilidad del producto para consumo y para alimento animal.
  - El CIAL para abastece la región con semilla y grano gracias a la microempresa creada en la comunidad para este fin.
  - Los efectos sobre el mejoramiento de la alimentación local y el ingreso son notables.
  - El logro del objetivo social de la empresa productora de semilla en la comunidad en cuanto ofrecer semilla y grano de optima calidad, primero que todo a productores de pocos recursos a precios a su alcance, ha servido como un factor regulador de precios en el mercado del grano y la semilla en la zona.
  - Se ha ampliado el área cultivada en maíz en la región que ya exporta semilla a otras zonas.
- **CIAL Camposano.** Este Comité fue formado por la UMATA de Timbío con el apoyo de la ONG, Corporación para el fomento de los CIAL (CORFOCIAL), organización de segundo grado que aglutina los diferentes Comités. El impacto en este CIAL se ha visto en:
    - Adopción de la metodología por parte de organización de base.
    - Multiplicación de la metodología por parte de los miembros del CIAL con entidades estatales con amplia capacidad de multiplicación en el área.
    - Incorporación de resultados de sus ensayos en sus cultivos comerciales.
    - Difusión de innovaciones y de la metodología CIAL, de agricultor-a-agricultor.
  - **CIAL de Betania.** Investigó sobre variedades de frijol y dosis de abono, lo mismo que sobre variedades de arveja. Actualmente, está multiplicando semilla de arveja para su comunidad con el apoyo de la una institución del Estado (UMATA de Piendamó).
  - **CIAL San Bosco.** Investigó en variedades de maíz; formó su microempresa de semillas y ha vendido 1.000 kilos de semilla de la variedad regional Yunga que está recuperando en la zona y 6000 kilos de grano. Está recuperando también una variedad de maíz blanco llamada "Across". Ha recibido apoyo con fertilizantes de la UMATA de Santander de Quilichao.



- **CIAL Santa María.** Este grupo ha investigado sobre sistemas de multiplicación vegetativa y por semilla de granadilla de Quijo, un cultivo tradicional de la zona que estaba en extinción. Creó un pequeño vivero y está vendiendo plantas a los agricultores de su región.
- **CIAL Nemogá (Cundinamarca).** Este CIAL investiga en tutorado y variedades de Arveja, aptas para la región. Ha identificado ya algunas bastante buenas tanto para la zona alta como baja de la comunidad. Aunque la investigación sobre el tutorado continúa, la comunidad ya comienza a utilizar los resultados observados. Trabajan actualmente en su segundo ensayo de comprobación.

### **Ejemplos de CIAL, Honduras**

- **CIAL Vallecillos, Yoro.** Es un CIAL que investiga en abonos verdes y químicos, encontrando muy buena respuesta hasta ahora con los abonos verdes. El trabajo de este grupo es muy visitado por comunidades vecinas que se están interesando también en investigar y por técnicos de distintas instituciones.
- **CIAL Lavanderos.** Investiga en maíz y frijol en asocio. Este CIAL perdió su primer ensayo por problemas climáticos pero ya había internalizado la necesidad de investigar y no se desanimó. Ha comprometido a los técnicos en la búsqueda de tecnologías fuera de las estaciones experimentales cuando éstas no las tienen.
- **CIAL El Cerrón.** Este Comité investiga en dosificación de abono orgánico y variedades de maíz. Con el abono orgánico, han incrementado bastante la producción y conseguido aprovechar la gallinaza por primera vez.
- **CIAL San Antonio de Yoro.** Es un CIAL de mujeres que se propone rescatar el cultivo de la yuca, base de la alimentación en su comunidad. Inicialmente deseaban nuevas variedades pero a través de la investigación aprendió sobre la importancia de rescatar las variedades locales. incluyendo en su ensayo, seis variedades de estas y tres de la estación experimental.

### **Ejemplos de CIAL, Bolivia**

En Bolivia, IPRA tiene convenio con PROINPA (Programa de Investigación Nacional de la Papa), para la implementación del Proyecto de Difusión de la metodología CIAL, en la región de Cochabamba. PROINPA, ha hecho a su vez un convenio con la Universidad de San Simón de Cochabamba, para dictar diez horas de teoría y cinco de práctica dentro de la cátedra de extensión agrícola a estudiante de sexto semestre de Agronomía. Ha organizado además por su propia iniciativa, eventos de capacitación en técnicas de evaluación participativa, con la participación de 28 personas de 7 instituciones incluido el IBTA (Instituto Boliviano de Tecnología Agrícola).

- **CIAL Mizque.** Este CIAL funciona en el marco de PROINPA. Actualmente este Comité es invitado regularmente por la estación experimental de Toralapa del IBTA (Instituto Boliviano de Tecnología Agropecuaria), para evaluar los ensayos regionales en diferentes estados de su desarrollo, inclusive en la fase de cocción y degustación. Multiplican variedades y distribuyen las mejores en la comunidad, situada en un polo de desarrollo agrícola importante cerca de Cochabamba. Ha capacitado varias comunidades vecinas en la metodología CIAL utilizando mecanismos de atracción como juegos de fútbol antes de los cuales organiza sesiones de campo entre los asistentes para contarles sobre sus investigaciones y resultados.

## **Estudio de Impacto de los CIAL**

### **Objetivo**

Evaluar la adopción e impacto de los Comités de Investigación Agrícola Local (CIAL) en el Departamento del Cauca, Colombia.

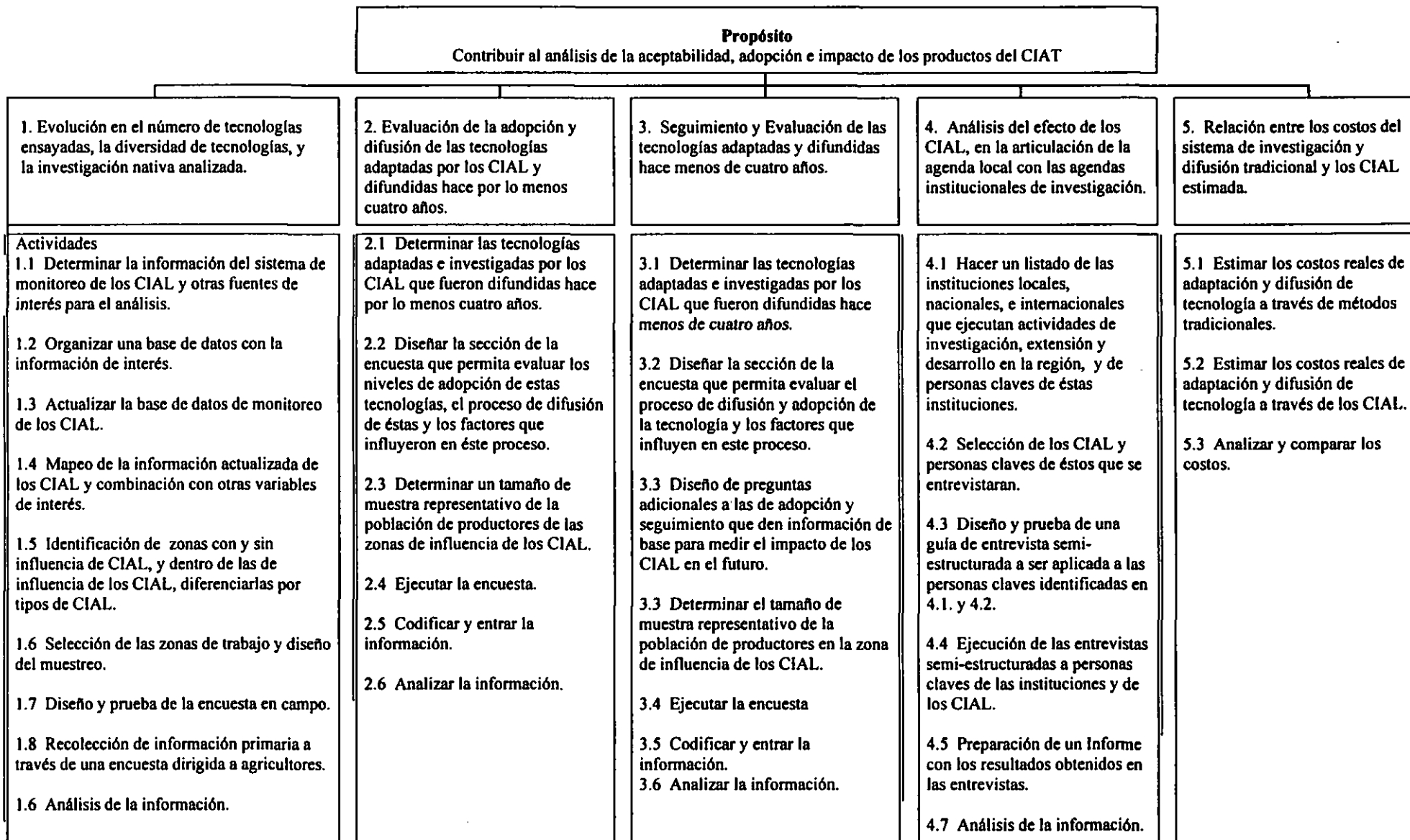
### **Productos Esperados**

1. Evolución en el número de tecnologías ensayadas, la diversidad de tecnologías y la investigación nativa analizada.
2. Evaluación de la adopción y difusión de las tecnologías adaptadas por los CIAL y difundidas hace cuatro años o más.
3. Seguimiento y evaluación de las tecnologías adaptadas y difundidas hace menos de cuatro años.
4. Análisis del efecto de los CIAL en la articulación de la agenda local con las agendas institucionales de investigación.
5. Relación estimada entre los costos del sistema de investigación y difusión tradicional y los costos de los CIAL.

### **Descripción de la metodología y actividades**

En la Figura 3 se presenta la estructura del estudio de impacto, relacionando las actividades con los productos esperados. El diseño de la metodología que se utilizará para este estudio trata de evaluar a los CIAL desde la perspectiva de los objetivos de los CIAL y de lo que se buscaba con éste método de investigación participativa. En la medida de lo posible, se evaluará su impacto en el contexto más amplio del desarrollo rural. Este estudio se lleva a cabo con el apoyo de la Unidad de Análisis de Impacto, CIAT (Proyecto CIAT BP2).

**Fig. 3. Estudio de Evaluación del Impacto de los Comités de Investigación Agrícola Local (CIAL) en el Departamento del Cauca, Colombia**  
**Estructura del Proyecto Relacionando las Actividades del Proyecto con los Productos 1**



1 Unidad de Análisis de Impacto, CIAT.

## **Cambio en el volumen de tecnologías ensayadas, la diversidad de tecnologías, y en la investigación nativa**

Una de las hipótesis del impacto de los CIAL en la región es que actualmente los agricultores están ensayando un mayor número de tecnologías, una mayor diversidad de éstas, y que se ha aumentado la investigación nativa.

Actualmente el sistema de monitoreo de los CIAL, implementado por el equipo del proyecto, contiene información útil para determinar el volumen de tecnologías ensayadas por los CIAL y su diversidad a partir de 1990.

La información recolectada por este proceso de monitoreo es bastante completa para el período 1991-94, donde se encuentra información de 48 CIAL. Sin embargo, a partir de 1994, cuando el manejo de los CIAL se pasó del CIAT a CORFOCIAL, este sistema de monitoreo tiene bastantes vacíos de información. Por esta razón es necesario hacer un trabajo de actualización de estos datos para tener información confiable y un análisis de la evolución en el volumen y la diversidad de investigación en el tiempo, el cual cubra el periodo de 1990-1997. Además, es necesario actualizar la información de seguimiento para cubrir los CIAL manejados por otras instituciones diferentes a CORFOCIAL; y que funcionan en la zona.

La información de monitoreo, y la existente en otras bases de datos, se evaluará y se seleccionará aquella de utilidad para este estudio. Esta información será luego organizada en una sola base de datos y se realizará un mapa de la zona sobreponiendo la información de los CIAL, con información sobre zonas agroecológicas y los principales cultivos.

Para lograr este producto, se propone realizar un análisis a partir de los datos del sistema de monitoreo de los CIAL; y en la medida de lo posible, utilizando el estudio que realizó IPRA en 1987 como una base de comparación con la situación actual. Por otro lado, para complementar el análisis en el tiempo que se pueda lograr con la información de monitoreo y el estudio de base comparar una zona con CIAL con una zona en la región con las mismas características donde no haya habido influencia de los CIAL. De esta manera es posible comparar en un punto en el tiempo la situación con y sin la presencia de los CIAL. Además, dentro de la zona con influencia de los CIAL, se identificaran zonas por tipología de los CIAL (ej. CIAL maduros vs CIAL nuevos, CIAL manejados por CORFOCIAL versus CIAL manejados por otras instituciones, etc.). De esta manera se tendría la matriz presentada en la Tabla 7.

Tabla 7. Matriz de diseño del estudio de impacto de los CIAL.

	Situación antes de los CIAL	Situación después de los CIAL
Zona con influencia de CIAL clasificada por tipo de CIAL	Estudio socioeconómico 1987	Estudio de impacto de los CIAL, 1997
Zona sin influencia de CIAL	Estudio socioeconómico 1987	Estudio de impacto de los CIAL, 1997

## **Adopción y difusión de tecnología generada por los CIAL**

La manera de evaluar el impacto de los CIAL es la de evaluar el nivel de adopción de las tecnologías generadas y difundidas por los CIAL y el impacto económico de este cambio tecnológico. Sin embargo, para poder realizar este análisis es necesario que exista cierto tiempo desde la difusión de estas tecnologías. Por esta razón sólo se analizará la adopción de tecnologías que hayan sido difundidas y hayan tenido un tiempo suficiente para que exista un cierto nivel de adopción.

Debido a que uno de los objetivos de los CIAL fue el de reducir el tiempo entre la difusión y la adopción de tecnología, en este estudio se busca evaluar este proceso de difusión y adopción y los factores que influyeron en este proceso.

Para lograr este producto es necesario primero identificar cuáles son las tecnologías que han sido difundidas y que ya están siendo adoptadas y hacer una selección de aquellas que serán evaluadas. Una vez realizado este proceso, se diseñara una encuesta dirigida a los productores del área de influencia de los CIAL, la cual será aplicada a una muestra significativa de esta población objetivo. Posteriormente los datos serán ingresados en una base de datos y analizados.

Con base en este análisis será posible estimar el número de tecnologías adoptadas, las tasas de adopción de éstas tecnologías, y el impacto económico de la adopción de estas tecnologías a nivel de finca, para el procesador cuando sea el caso y para el consumidor final.

## **Seguimiento y evaluación de la tecnología generada por los CIAL**

Teniendo en cuenta que los CIAL solo empezaron a funcionar a partir de 1990, la mayoría de las tecnologías ensayadas por ellos, probablemente solo tienen un corto periodo desde su difusión o no han sido difundidas aún. Por esta razón, solo sería posible hacer un seguimiento y evaluación de estas tecnologías para conocer en que parte del proceso se encuentran, si han sido difundidas, las razones por las que algunas no se han difundido y en general el estado de estas tecnologías. Con este objetivo se ampliará la encuesta de adopción e impacto, de manera que permita hacer un seguimiento y evaluación de las tecnologías más recientes y a la vez sirva como un estudio de base. Este estudio de base será muy importante y necesario para poder evaluar la adopción e impacto de los CIAL en unos cuatro o cinco años ya que servirá como una base de comparación.

## **Articulación de la agenda local con las agendas institucionales**

Los CIAL también tienen como objetivo la retroalimentación rápida y a tiempo a los centros de investigación por parte de los agricultores, de manera que esta retroalimentación ayude a articular la agenda local de investigación con las de las instituciones y ayude a éstas en el diseño de tecnología apropiada. Por lo tanto, los CIAL buscaban crear una demanda por parte de los clientes y de las organizaciones sobre la investigación y extensión.

Para evaluar el grado y éxito de esta articulación se realizaran entrevistas semi-estructuradas con miembros de los CIAL, y funcionarios de las instituciones estatales; ONGs, y otras instituciones locales que tienen actividades de investigación y desarrollo en la zona de influencia de los CIAL, así como instituciones de extensión y de crédito.

De esta manera, será posible conocer cómo las instituciones incluyen las demandas de los agricultores en su agenda de investigación y/o sus planes de desarrollo de la zona, y si ésta agenda da respuesta a las necesidades de los usuarios. Por lo tanto, la información obtenida de los

miembros de los CIAL permitirá establecer en que medida las instituciones están respondiendo a sus necesidades y cuál ha sido la influencia de los CIAL en esta articulación.

Por otra parte, las entrevistas con los funcionarios de las instituciones permitirán definir en que manera las necesidades y demandas de los usuarios han influido en las agendas de investigación de las instituciones.

### **Costos de la investigación adaptativa**

Finalmente, para validar los CIAL como una alternativa atractiva de hacer investigación adaptativa, se buscará estimar los costos reales de adaptar y difundir tecnología de la manera tradicional, versus hacerla con los CIAL. Para esto, es necesario hacer un listado de los rubros en que se incurre en cada uno de los casos y valorarlos a precios actuales.

## **CONTEXTO INSTITUCIONAL**

### **Proceso más largo**

A pesar de haberse extendido el método CIAL a un mayor número de países y sitios de lo planeado durante el período que cubre este informe, ya pueden aprenderse lecciones importantes sobre la complejidad de los procesos cuando se desea la concurrencia de instituciones, culturas, objetivos y formas de trabajo con otras entidades y con pequeños productores, tan diversas. El solo hecho de entregar por ejemplo a una institución la responsabilidad de seleccionar los participantes en un evento de capacitación para implementar el proyecto, puede introducir un cierto riesgo en los futuros desarrollos del proyecto. Sin embargo, es difícil predecir estas cosas mientras no se creen las situaciones y se las observe. De otra forma se incurriría en juicios anticipados (ej, “no sabrán hacer una buena selección...no entenderán bien los criterios para hacerlo de manera apropiada”...). También, entendemos que la mejor manera de conocer las instituciones es en la acción, trabajando con ellas.

Esta ha sido un tanto la experiencia de IPRA al delegar en las instituciones participantes responsabilidades como las de seleccionar los participantes para los eventos de capacitación o la implementación posterior de actividades en el campo; no sin antes haber acordado con ellas por ejemplo, los criterios de selección de participantes. Ecuador por ejemplo, reconoció meses después de desarrollado el Curso I, no haber tenido en cuenta los criterios acordados; razón que explicaba en parte la falta de compromiso institucional para la aplicación posterior de la metodología en campo. Necesitamos comprender, aún mejor, por qué ocurren estos fenómenos; cuándo es el momento oportuno para delegar; qué es lo que se puede y lo que no se puede delegar a instituciones participantes en estos procesos y, sobretodo, qué hacer cuando lo que finalmente se busca es crear una capacidad nacional para asumir todas las tareas ligadas a multiplicar masas críticas en la replicación de la metodología CIAL.

### **Relación con las instituciones**

Han sido identificadas algunas limitaciones en el trabajo con las instituciones, especialmente relacionadas con los siguientes aspectos:

- Falta estabilidad laboral en los funcionarios de Organizaciones Gubernamentales (OGs) capacitados en el Curso I, para aplicar la metodología CIAL sin interrupciones, en una misma área, por lo menos durante un ciclo productivo completo.

- Algunas entidades tanto gubernamentales como no-gubernamentales, muestran dificultad para garantizar la contrapartida solicitada por el proyecto y representada en el apoyo logístico convenido formal o informalmente con el CIAT, para facilitar básicamente transporte y parte del tiempo de los funcionarios capacitados en el Curso I, que aplicarían la metodología CIAL en el campo. El CIAT por su parte ofrece cubrir los costos de la capacitación, materiales, el apoyo de los capacitadores del CIAT para el desarrollo de los Cursos, los seguimientos, y los recursos necesarios para los trabajos de investigación de los CIAL. El argumento de las instituciones es que la contrapartida que les corresponde, de todas maneras representa un costo que no pueden asumir porque ya trabajan con déficit de recursos económicos y humanos en las actividades que actualmente tienen.
- De otra parte, es clara la expectativa de muchas instituciones por conseguir recursos a través de este proyecto, pensando en poder destinar parte de ellos para aliviar su déficit presupuestal en otras actividades. Por ejemplo, conseguir dinero para contratar un funcionario de tiempo completo, para el proyecto, pero en la práctica asignarle funciones adicionales.
- Es frecuente encontrar falta de compromiso de parte de las instituciones con las comunidades, cuando se trata de exigir como requisito de participación en un evento de capacitación, la posterior aplicación en el campo, de los conocimientos aprendidos. Esto puede ocurrir porque no cuentan con los recursos para hacerlo, porque la capacitación por lo general no les cuesta, porque no se acostumbra ligar objetivos de la entidad con necesidades de capacitación u otras razones que necesitamos comprender mejor.

#### *Las universidades*

En dos convenios actuales, aparecen universidades: La Universidad Nacional de San Simón-UNSS de Bolivia y la Facultad Latino-americana de Ciencias Sociales-FLACSO de Ecuador. Otras están pendientes de entrar en convenios como la Universidad Nacional Agraria-UNA de Nicaragua y el Centro Universitario Regional del Litoral Atlántico-CURLA, de Honduras.

En Zamorano, la persona capacitada en la metodología CIAL está dictando seminarios sobre el tema, a estudiantes de segundo y tercer año de agronomía. Además, la universidad autorizó recursos al técnico coordinador de los CIAL de Zamorano capacitado por IPRA, para organizar seis nuevos CIAL durante el segundo semestre de 1997 (ver Anexo 7).

IPRA ha encontrado con alguna frecuencia interés de profesores y de universidades por aprender la metodología CIAL; más cuando aparece el requisito de crear CIAL para aprender en la práctica, el interés parece desvanecerse. Los profesores aducen falta de tiempo, sobre carga de trabajo y falta de apoyo logístico como si fuese difícil conciliar teoría y práctica en cuestiones del desarrollo rural. Por lo general, se observa una presencia escasa de las universidades en el campo, y esto es poco compatible con la filosofía de la metodología CIAL. Ante esto, el proyecto plantea la posibilidad de que las universidades trabajen coordinadamente con instituciones como las ONG, que por lo general tienen presencia real en el campo, para lograr enriquecerse con la experiencia de aplicar el método y realizar una capacitación eficiente en la metodología CIAL. Hasta ahora se ha visto un esfuerzo de este tipo materializado en Bolivia a través de PROINPA y de la Universidad de San Simón. Esto se ha dado, acordando la participación del coordinador de los CIAL de PROINPA, como docente en la universidad, dictando seis horas y un día de práctica en la metodología CIAL, dentro de la cátedra de extensión rural y a partir de Septiembre de 1997, se autorizó la materia sobre la metodología CIAL, como electiva Anexo 8).

Existen también en las universidades posiciones radicales por parte de algunos profesores que con frecuencia cierran las puertas a innovaciones que procedan de fuentes para ellos no simpatizantes política o ideológicamente hablando.

## **PLANES FUTUROS**

### **Planes en cuanto a las relaciones institucionales**

Si bien se han logrado considerables avances en la difusión internacional del método CIAL, falta aún avanzar hacia el fortalecimiento de una capacidad institucionalizada para capacitar en esta metodología, por fuera de los CIAL; sea a partir de una universidad, de organizaciones gubernamentales o no-gubernamentales o mejor aún como resultado de la acción conjunta de todas ellas con las organizaciones de base de las comunidades.

En Nicaragua se espera encontrar otras instituciones tanto docentes como ONGs, que ofrezcan mejores posibilidades para la capacitación en el método. En Honduras, se continuarán fortaleciendo los vínculos con IPCA y se continuará la relación con el proyecto UNIR, Zamorano.

En Ecuador y Bolivia, se continuará trabajando con las mismas entidades. En Bolivia, se explorará una participación más directa de una ONG llamada CEDEAGRO que podría ofrecer mayor potencial que la Universidad de San Simón o que PROINPA, para asumir la función de capacitación en la metodología CIAL. En Ecuador se fortalecerá el apoyo al Programa Nacional de Investigación de la Papa-FORTIPAPA, que después de recibir capacitación viene realizando un trabajo muy importante de investigación participativa con productores, intermediarios transformadores y consumidores de papa en el país y planea a partir de 1998, difundir esta metodología a otros cultivos dentro del sistema nacional de investigación y extensión del Ecuador.

En Brasil se estudiará la posibilidad de atender nuevas solicitudes, entre otras de un proyecto de desarrollo financiado por el BID para una zona amplia, fuera del área del proyecto PROFISMA llamada Sergipe; donde se desea introducir la metodología CIAL como infraestructura organizativa del trabajo con los productores, altamente satisfechos con los resultados que han observado las entidades nacionales y los donantes, en los trabajos de los CIAL, en los Estados vecinos del nordeste. Se buscará también, apoyar algunas iniciativas locales para crear sus propios programas de investigación participativa surgidas en entidades estatales y privadas de investigación a raíz de los trabajos que allí se adelantan por las personas ya capacitadas.

Se completará también la evaluación de la metodología CIAL por parte de las entidades y a partir de ella, estas estudiarán la posibilidad de incorporarla a sus planes de actividades.

IPRA evaluará igualmente, su relación con las instituciones para determinar con cuales de ellas se justificaría trabajar en el futuro.

### **Capacitación futura**

En el próximo año, se realizará un Curso II para capacitadores, en Centro América (Honduras); en un país Andino (Ecuador o Bolivia) y en Brasil. El objetivo de este curso, será que los capacitados puedan, en un futuro inmediato, asumir la responsabilidad de organizar y enseñar el Curso I sobre la metodología CIAL. Se continuará el seguimiento y monitoreo a los participantes del curso I en Ecuador, Colombia, Honduras, Nicaragua, El Salvador y Bolivia.



En Colombia se realizará un nuevo Curso I, por solicitud de 10 UMATAS del centro del departamento del Cauca y de otra regional de CORPOICA. En México, el Proyecto DIP de la Universidad de Londres/Universidad de Yucatán financiado por la ODA, ha mostrado gran interés en la metodología CIAL a raíz de una visita a Colombia. Este proyecto desea adaptar la metodología al componente pecuario (especies menores o lo que ellos llaman "animales de transpato") dentro del sistema milpa; con fuerte énfasis en el aspecto de género. La Universidad de Guelph de Canadá y la Facultad de Medicina Veterinaria de la Universidad de Mérida México, estarían dispuestas a elaborar una propuesta; buscar financiación y hacer el trabajo de adaptación de la metodología CIAL lo mismo que crear la capacidad interna de difundirla, con el apoyo de IPRA, que en este momento no cuenta con presupuesto para ello.

En Honduras continuará la capacitación a para-técnicos por parte del IPCA, contando con 15 participantes de cinco instituciones que ya están aplicando la metodología y se espera ampliarla a otras entidades. En Colombia y Bolivia se espera que los técnicos ya capacitados, capaciten también este año para-técnicos.

En los países con los que se ha firmado convenio (Ecuador y Bolivia), los gastos de los seguimientos a la capacitación, serán cubiertos con dineros entregados por IPRA para este propósito. En Honduras, Nicaragua y Colombia los gastos se cubrirán con fondos del Proyecto Kellogg / CIAT. En el Salvador donde existen ya algunos CIAL, ellos cubrirán los gastos del evento de capacitación y los materiales y el CIAT cubrirá los gastos de viajes de los capacitadores.

Numerosas solicitudes de capacitación en la metodología CIAL, continuarán llegando y siendo atendidas en la medida de las posibilidades, respetando las prioridades en cuanto a los compromisos con la Fundación Kellogg.

### **Continuación del Estudio de Impacto**

Está previsto hacer una clasificación de niveles de pobreza o bienestar en comunidades donde existen CIAL. La metodología para el establecimiento de niveles de bienestar por parte de la misma población, consiste en escoger cinco informantes claves en cada comunidad quienes establecen a qué nivel de bienestar (alto, medio o bajo) pertenecen los habitantes de su comunidad, utilizando sus propios criterios de clasificación. Esta clasificación se hará para determinar a quiénes, en términos de niveles de bienestar, están llegando los resultados y beneficios de la existencia de un CIAL en las comunidades (ver Anexo 9 sobre detalles a cerca de esta metodología).

En 1998, se terminará en el área piloto del Cauca, Colombia, el estudio piloto de impacto de los CIAL. Se propone aplicar posteriormente, elementos de este estudio en los demás países donde hay CIAL con un mínimo de cuatro años de existencia.

Utilizando las preguntas claves para la evaluación del proyecto, se procederá a:

- (1) Analizar los resultados de la evaluación por las instituciones, actualmente en marcha.
- (2) Hacer seguimiento a los capacitadores, entrenados en el Curso II.
- (3) Analizar respuestas a las preguntas formuladas por los CIAL en sus Encuentros Regionales a los que cada CIAL envía dos miembros como representantes en este evento anual de autoevaluación e intercambio de resultados
- (4) Analizar los resultados del estudio de impacto.

**En Brasil se adelantará un segundo seguimiento a los 26 CIAL existentes en el momento. IPRA hará una evaluación con las entidades para conocer su disposición actual con respecto a la metodología y estudiará con ellas y con EMBRAPA una serie de solicitudes de apoyo que han surgido por parte de ellas para crear cerca de 100 nuevos CIAL.**

11 MAR. 1998

## B. STAKEHOLDER ANALYSIS AND PARTICIPATORY MONITORING FOR NATURAL RESOURCE MANAGEMENT\*

### Collective action in natural resource management

- lessons from participatory action research in the Andean hillsides 1

### Acción colectiva para el manejo de los recursos naturales

- lecciones de investigación acción-participativa en las laderas de los Andes

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Helle Munk Ravnborg<sup>2</sup>

April, 1997

#### Abstract

Natural resource management problems related to agriculture often transcend field or farm boundaries and can only be understood or solved if adopting a landscape or watershed perspective. Due to this spatial and temporal interdependency, collective action among landscape or watershed users to coordinate how individual plots are managed becomes essential to improve natural resource management. The present paper discusses three aspects of collective action: (1) The importance of scale of natural resource management efforts for fostering and facilitating collective action; (2) the importance of involving the totality of landscape users and adequately elicit their concerns, interests, etc.; and (3) the need for collective landscape monitoring through improving the 'land literacy', i.e. landscape users' ability to read and appreciate signs of health (and ill-health) in a landscape.

#### Resumen en español

Los problemas del manejo de los recursos naturales relacionados con la agricultura a menudo trascienden las fronteras de lote o de finca, y solamente se pueden comprender o resolver si se adopta una perspectiva más amplia, por ej., la perspectiva de paisaje o de cuenca. Esta interdependencia biofísica, temporal y espacial, que existe entre las diferentes parcelas y recursos que hay en un paisaje, tiene implicaciones importantes tanto para la investigación participativa como para la organización actual del manejo de los recursos naturales. Basándonos en experiencias de investigación acción-participativa, realizadas dentro de los muy complejos grupos étnicos de las laderas andinas del departamento del Cauca, al sur de Colombia, este documento identifica y analiza en particular tres de estas implicaciones: (1) la importancia del tema de escala en esfuerzos para fomentar y facilitar la acción colectiva; (2) la importancia de involucrar la totalidad de los usuarios del paisaje y averiguar sus preocupaciones, intereses, etc.; y (3) la necesidad de un monitoreo colectivo de paisajes a través de un mejoramiento de la capacidad de leer el paisaje (en inglés: land literacy), i.e. ayudar a la gente que aprenda a leer y apreciar las señales de salud de los recursos naturales

#### Introduction

Natural resource management problems related to agriculture often transcend field or farm boundaries and can only be understood or solved if adopting a broader perspective, i.e. a landscape or watershed perspective. Pest management problems is an example. The presence and severeness of many crop pests and diseases do not only relate to the management given to the individual plot (the agroecosystem); it

\* This work is conducted jointly with community management of Watersheds (PE3)..

1 Paper presented at *Congresos Mundiales (4o. de Investigación-Acción, Aprendizaje-Acción y Administración de Procesos; 8o. de Investigación-Acción Participativa) Convergencia en conocimiento, espacio y tiempo*. Cartagena, Colombia, June 1-5, 1997.

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depends more widely on the way the landscape is structured in time and space in terms of plot sizes, intra- and interspecies diversity, habitat connectivity, etc. (Altieri 1987, Barrett 1992). Soil erosion is another transboundary natural resource management problem (Burel, Baudry, and Lefeuvre 1993). Cropping practices, including the use of erosion control mechanisms on upstream plots directly affect soil and water movements at the plots below. To tackle problems occurring in one part of a landscape, action might have to be taken in other parts. Vice versa, to assess the impact on natural resources of specific management practices, implemented in certain parts of the landscape, measurements might have to be taken in other parts or on other crops or resources.

This interdependency makes natural resource management research different from crop improvement research that typically focusses on plot-level effects and measurement of resource flows at the plot- or farm level. Also from an actor-oriented or participatory perspective, natural resource management research differs from crop improvement research. Crop improvement research typically focusses on the individual farmer or perhaps a number of individual farmers seen to represent distinct types of farmers and farming conditions. In contrast, the temporal and spatial interdependency that characterizes many natural resource management problems implies that some form of collective action among landscape users to coordinate how individual plots are managed becomes essential to improve natural resource management. Collective action is here understood as action that emerges from a process of individuals deciding to voluntarily coordinate or concert behavior, in this case natural resource management practices. This paper discusses three aspects of collective action that are seen as central to participatory action research on natural resource management

#### **Issues in participatory action research on natural resource management**

The first and most fundamental issue is how to foster and facilitate collective action. An important aspect of this issue is that of scale. This paper argues that the appropriate unit for collective natural resource management has to be found within the community: Apart from not being a bio-physical unit showing the bio-physical interdependencies as e.g. a watershed, nor often a social unit (but rather administrative), the community tends to be too large for mutual understanding and trust to develop among its members. A second issue raised by the bio-physical interdependency that exists within a landscape or watershed, is the importance of involving the totality of users in efforts to improve natural resource management and adequately appreciate the different views, interests, concerns, etc. that individuals or groups of landscape or watershed users have on their own as well as others' use of the landscape. Failing to include some landscape users -- or stakeholders -- and their concerns is likely to hamper efforts to improve natural resource management due to the bio-physical interdependency that exists in time and space between the resources they manage. Methodologically, the challenge is how to identify stakeholders relating to a particular landscape and adequately elicit their concerns, interests, etc. Obviously, in most cases, there will be both internal and external stakeholders. In this paper, however, I shall only deal issues related to internal stakeholders.

The third issue in participatory natural resource management research relates to natural resource monitoring. Measuring or even observing effects of particular resource management practices at the landscape or watershed level is inherently complicated both to landscape users and to researchers. This reduces immediate incentives for landscape users to engage in efforts to improve natural resource management. The third issue therefore is how to improve land literacy, i.e. how to help people read and appreciate signs of health (or ill-health) (Campbell 1994) and track change in a landscape and to devise a process or a set of tools through which this can be done.

Drawing on experiences from participatory action research carried out in two micro-watersheds in the Andean hillsides of the Cauca Department in southwestern Colombia -- Los Dos Zanjonés (44 hectares) and La Recuperación (app. 300 hectares) as well as experiences reported in literature, the following sections discuss each of these issues.

### **Fostering collective action in landscape management**

Rural landscapes, particularly in hillsides regions such as the Andean hillsides or the East African highlands, tend to be managed by numerous individual landholders. Most of them own small patches of land which together with other natural resources and perhaps day-laboring on neighboring farms, provide the major part of livelihood. Decisions on how to manage land, water and other natural resources tend to be taken individually and to be governed by concerns related to securing household livelihood rather than with a view to the landscape and the entire set of landscape users.

This does not only mean that landscape users lose sight of important landscape properties and thereby that related natural resource management problems are aggravated. It also means that opportunities for improving production even in the short-term are missed.

A number of factors might explain this apparent mismatch between potential gains from collective action on the landscape or watershed level on the one hand, and its absence or inadequacy on the other: the fact that people tend to get used to and not question *status quo*; the lack of individual willingness or capacity to assume the transaction costs related to initiating collective action; and the lack of information about attitudes and willingness of other landscape users towards collective action (White and Runge 1995). Altering this situation is likely to require a stimulus and input from outside. This is where the role of participatory action research becomes important. Some key elements of such a process of change can be identified, based on experiences reported in literature as well as own work conducted Los Dos Zanjones and La Recuperación in the Andean hillsides of Colombia.

A first element is to stimulate that landscape users, on an individual basis, come to appreciate the need for collective action to solve problems that they are currently facing by drawing their attention to landscape interdependencies. In the Gal Oya case in Sri Lanka where farmers got organized to improve irrigation water management (Uphoff 1992), so-called institutional organizers were visiting farmers on an individual basis, asking about their problems related to irrigation and how they could solve these as individuals. This made farmers recognize the need for collective action and laid the ground for group meetings. In La Recuperación, a similar process was followed using a format which is discussed in the following section and drawings of landscapes to give the rather abstract terms, "natural resources" and "landscapes", more concrete meaning. In Los Dos Zanjones, users were asked to analyze a drawing of a fictive landscape with a number of ongoing activities such as tomato cultivation and associated application of chemicals; fishing; incautious use of burning for land preparation exposing neighboring fields to danger; pollution of water through outlets of sewage water; etc. (see figure 1).



Watershed users were specifically asked to make observations on how individual activities were affecting each other and to relate this to activities taking place in their own watershed. This led to the formulation and implementation of an action plan to address problems such as ant control and loss of soil fertility through erosion.

Individual expectation of gains is an important condition for collective action. However, as pointed out by both Uphoff, based on the Gal Oya case, and by White and Runge in their study of peasants engaging in collective action to control transboundary erosion in Maissade, Haiti, gains should not be interpreted in a strictly economic sense. Gains in terms of personal satisfaction derived from contributing to the improved well-being of others - altruism - (Uphoff 1992), or in terms of banking favors and building (or honoring) debt claims with neighbors (White and Runge 1995) often act as important motivations for individuals to participate in collective action.

The second element in fostering collective action is to provide an opportunity for face to face contact between landscape users and thereby assume an important part of the initial transaction costs associated with initiating collective action. Again, based on the Gal Oya case, Uphoff describes how simply bringing people together to meet face to face created a public forum where before there had only been private communication. It facilitated new flows of information about what neighbors do and think, and created pressures for fairness, legitimacy, status and values that altogether prepared the ground for collective action. However, for such face to face contact to be practically possible and effective in building up mutual trust and understanding among landscape users, the number of users and thereby the landscape or watershed should be relatively small (Cernea 1988, Uphoff 1992, 1994), i.e. up to 20-30 users or families which in a smallholder context typically would mean an area between 25-500 hectares, depending on population density. The appropriate unit for fostering collective action is therefore likely to be found within the community.

Yet, for many natural resource management problems such as pest management problems, 500 hectares will often be considered too small an area of intervention due to the related bio-physical processes taking place at a wider scale. To reconcile such concerns with the importance of mutual trust and understanding among landscape users as a precondition for collective action, the more successful strategy seems to be to link small base-level groups which have the benefit of face-to-face contact into a multi-tiered type of organization rather than to go large scale from the beginning (Uphoff 1994, Ostrom 1994). This moreover signals the importance of starting work in a landscape by addressing problems that besides being important to landscape users, are solvable or ameliorable at the small scale. Once successful experiences are gained at this level, problems that require coordinated management of larger areas and between larger numbers of users might be embarked upon through contacts with users of neighboring landscapes or watershed.

### **Stakeholder identification**

Collective action in landscape or watershed management is likely to have to take place in the context of diversity. Landscapes typically contain a multitude of common and privately owned resources such as crop land, pastures, vegetation, animals, and water. Each resource has an associated complex of often conflicting interests held by stakeholders inside as well as outside the watershed. As an illustration of the diversity, the 20 families using the 44 hectare watershed, Los Dos Zanjones, comprise four ethnic groups, two religious groups, commercial as well as subsistence farmers, land renters and land owners, etc. Due to the bio-physical interdependency between the resources within the landscape, successful landscape management depends on the identification and understanding of different stakeholders and their resource use.

Scaling up from plot to landscape and from crops to natural resources implies that characterizing users according to dimensions such as resource endowments, gender, degree of market involvement, etc. is no

longer sufficient. Many more aspects are likely to be in play such as non-agricultural uses of landscape, the particular position of a plot, a crop or a practice within the landscape, degree of attachment to the land, religion, ethnicity, etc.

Methodologically, the problem is that the specific factors shaping the existence of different stakeholder groups are likely to vary between landscapes and may depend on the particular issue within landscape management. This precludes or at least complicates *a priori* stakeholder identification based on a predetermined checklist of possible factors. Instead stakeholder identification has to be contextual and calls for open-ended constructivist inquiry or exploration (Guba and Lincoln 1989). In the context of landscape management, this means a process through which landscape users are invited to relate their concerns, ideas, values, and issues related to the landscape and the management of resources taking place within it.

In our experience, a crucial feature of successful stakeholder identification has proven to be that it is based on interviews with *individuals* and departs from the individual landscape user's *personal concerns*, etc. We learned this mid-way through the group-based stakeholder identification in *Los Dos Zanjones* - the watershed where we initiated our work: Claims of homogeneity and agreement that had been made by landscape users during various group sessions, turned out to cover various types of disagreements and disapproval of others' resource use, such as clearing and burning of river banks or excessive use of agricultural chemicals. It was only through interviews with individuals that we got insights into such conflicts. The reason for this probably is that identifying the existence of different interests or even conflicts in a group session implies distancing oneself from neighbours in their presence - something which is often socially unacceptable.

In *La Recuperación*, we therefore decided to start the stakeholder analysis with individual interviews. To facilitate these interviews we developed a format, consisting of 2 pages and 5 questions (Box 1). The last question serves to ensure that *all* stakeholders are identified. Each respondent is asked to nominate another landscape user who in the respondents view would be likely to hold a perception that contrasts his or her own. By subsequently interviewing the nominated person, landscape users end up being "sampled" according to what could be called "contrast" or "maximum variation" sampling. The process of interviewing and soliciting nominations for new respondents is repeated until the information being received either becomes redundant or falls into two or more *constructions* that remain at odds in some way. Following each interview, central themes, concepts, ideas, values, concerns, and issues proposed by the respondent are analyzed by the inquirer and put into an initial formulation of the respondents *construction*. After the following respondent has volunteered his or her perception, the themes suggested by the preceding respondent(s) are introduced and the respondent is invited to comment on those themes. The constant comparison and contrasting of divergent views is a salient feature of constructivist inquiry and seems essential to any attempt to meaningfully identify and appreciate the existence of conflicting interests.

Each of the emerging constructions indicate the existence of a stakeholder group. At this point, it is useful to bring together the "members" of each stakeholder group to discuss the construction and affirm its credibility as a joint construction of landscape management issues for that particular stakeholder group. These joint stakeholder group constructions form the basis of subsequent negotiation and formulation of action plans that are to take place between the different stakeholder groups identified within the landscape.

Date:	Household number:
Interviewer:	Watershed/area:
Name of respondent:	
1. How do you and your family use the natural resources in this area?	
2. Which are the problems that you and your family have experienced with respect to the natural resources?	

3. From working in other areas, we have seen that it is very rare are conflicts between people living in the same area about the sources. Could you perhaps give some examples of such conflicts	
4. What do you think would be needed to solve these conflicts?	
5. Thanks a lot for telling me all this. That is very useful. However, I am sure that there are other people in this area who see things differently from how you have just described. Would you, please, give us the name of a person who would be likely to have a different viewpoint? Name(s):	

**Box 1. Format for initial stakeholder analysis in natural resource management**

**Collective landscape monitoring**

The difficulty of measuring or even observing the effect of particular resource management practices at the landscape level and the interaction taking place between different patches or species within a landscape or watershed, affects landscape users as well as researchers. For landscape users, it reduces the immediate incentives to engage in efforts to improve natural resource management. For researchers, it seriously questions conventional approaches to experimentation. Requirements of controls and replications on experimental plot-level which are central elements of conventional experimentation and involve a relatively limited amount of data-collection, become virtually impossible to maintain in



landscape-level research. Instead, large data sets on many landscape features related to the issue in question are needed from different landscapes that, at best, are similar (Firbank 1993). This is costly.

Increased involvement of landscape users in monitoring and analysis of spatial and temporal changes of key features within the landscape such as water quantity and quality, severeness of pest attacks, etc. might offer a practical solution both for landscape users and for researchers. For landscape users, it not only would improve land literacy, i.e. ability to read and appreciate signs of health (and ill-health) in a landscape and to understand the condition of the environment around them (Campbell 1994); it also would enhance the ability to plan interventions in terms of scale and timing of efforts as well as to prioritize between possible alternative solutions (Ravnborg and Ashby 1996). For researchers, the involvement of landscape users in monitoring would provide a feasible way of obtaining the large and therefore expensive sets of data required to properly analyze natural resource management problems at the landscape level. As an example from Australia, schools and landcare groups, i.e. groups of farmers working together to develop more sustainable systems of land management, gathered and analyzed tens of thousands of water samples from creeks, rivers, reservoirs, irrigation channels, and bores. Each school or landcare group analyzed its data and sent it to a central agency for processing. In return, they received a computer-generated overlay map of water quality in the whole district which served for interpretation, discussion, and planning of further actions such as rehabilitation projects. Apart from enhancing land literacy, involving landcare groups and schools in water monitoring meant that a larger amount of data from more sampling points could be gathered than was conceivable for government agencies paying professional staff (Campbell 1994). This point is even more pertinent in developing countries where the authorities responsible for natural resource management tend to be inadequately staffed and hence even less able to perform such data collection than their Australian counterparts (Ravnborg and Ashby 1996).

In the work, carried out in Los Dos Zanjonos in Cauca, landscape users identified the crop damage done by leaf cutting ants as a landscape-level problem: Since ants don't respect field or farm boundaries, farmers who control ants on their plots still might get their crop eaten by ants coming from neighboring plots. Moreover, the ant control method hitherto used in Los Dos Zanjonos<sup>3</sup> tends to "move" the ant activity from one place to another rather than eliminating it. Landscape users and CIAT researchers jointly sat up an experimental plan to test various methods of ant control. One of the methods -- pumping lime into the ant nest -- was evaluated very positively by landscape users as both being effective and economic and having positive environmental side-benefits in terms of reducing the use of chemicals and improving soil quality (de la Cruz et al. 1997). Landscape users subsequently have set up a plan for implementing this control method at a landscape level and, jointly with researchers, a plan for monitoring effectiveness in the control of existing ant nests as well as the establishment of new ant nests in the area. This monitoring system involves putting information about ant activity onto a map on a regular basis.

Many of the so-called rapid rural appraisal (RRA) techniques would be useful in efforts to involve landscape users in landscape monitoring, particular mapping techniques and techniques that allow for seasonal analysis of a particular problem or phenomenon. More emphasis will, however, have to be placed on devising procedures for continuous monitoring rather than the present one-off appraisal of the state of resources, and for compiling this information in a way that permits local as well as external analysis of the information. The tool developed by International Center for Living Aquatic Resources Management (ICLARM) for monitoring and assessment of small farm integrated agriculture-aquaculture systems, Research Tool for Natural Resource Management. Monitoring and Evaluation (RESTORE), which combines participatory research procedures with computer-based analysis, might provide a basis for development of tools to capture resource dynamics at the landscape or watershed level.

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<sup>3</sup> The method hitherto used has been to apply clorpirifox with a spoon around a few of the ant nest entrances/exits but rarely around all. The ants very soon start to use (or open) other entrances/exits.

### **Implications for natural resource management**

Moving from plot to landscape and from focussing on crop production in isolation to crop production in conjunction with natural resource management does not only raise issues related to social research centered around collective action as discussed in this paper. It also raises issues related to bio-physical research aimed at understanding landscape-level dynamics and designing natural resource management technologies. Two issues stand out. The first issue which has already been touched upon relate to scale and how to move between scales. As described for weed management studies (Firbank 1993) and for control of water run-off (Burel, Baudry, and Lefeuvre 1993), observations made at one or a few points within a landscape cannot be extrapolated to the entire landscape due to interdependencies existing between the different patches. Thus for many natural resource management problems there is a need to take the landscape as the unit of study. This rarely happens today.

The second and related issue is that of the role and mode of experimentation. Experimentation in a conventional sense is often practically unfeasible at the landscape level. Moreover, it may be unjustifiable to the extent that people depend on a particular landscape for their satisfaction of present and future needs. Instead design of natural resource management technologies increasingly will have to rely on large sets of data collected jointly by researchers and landscape users in real-world landscapes and analyzed through the use of different types of multivariate statistical procedures (Jongman et al. 1995), geographical information systems and modelling. Real-world experimentation at the landscape level will on the other hand have to be limited to issues and areas where local landscape users are motivated and organized to undertake such experimentation through collective action.

### **References**

- Altieri, M. 1987. *Agroecology. The Scientific Basis of Alternative Agriculture*. Westview Special Studies in Agriculture Science and Policy.
- Barrett, G.W. 1992. Landscape Ecology: Designing Sustainable Agricultural Landscapes. In: *Journal of Sustainable Agriculture*, Vol.2, No.3, pp. 83-103.
- Bunce, R.G.H. and R.H.G. Jongman. 1993. An Introduction to Landscape Ecology. In: Bunce, R.G.H.; L.Ryszkowshi and M.G. Paoletti (eds.). 1993. *Landscape Ecology and Agroecosystems*. Lewis Publishers, pp. 3-10.
- Burel, F.; J.Baudry; and J.Lefeuvre. 1993. Landscape Structure and the Control of Water Run-off. In: Bunce, R.G.H.; L.Ryszkowshi and M.G. Paoletti (eds.). 1993. *Landscape Ecology and Agroecosystems*. Lewis Publishers, pp. 41-47.
- Campbell, A. 1994. Landcare in Australia: Spawning New Models of Inquiry and Learning for Sustainability. In: *Recherches-systeme en Agriculture et Developpement Rural: Symposium International, Montpellier, France - 21-25 Novembre 1994. Communications*, pp. 366-370.
- Cernea, M. 1988. Alternative Social Forestry Development Strategies. In: Ives, J. and D.C. Pitt (eds.). 1988. *Deforestation. Social Dynamics in Watershed and Mountain Ecosystems*. Routledge, pp. 159-190.
- de la Cruz, A.; Ravnborg, H.M. and Cardona, Cesar. 1997. *Búsqueda de un método de control para el manejo de la hormiga arriera Atta cephalotes en la microcuenca del Río Cabuyal (Caldono, Cauca)*. Proyecto de Laderas, CIAT. mimeo.
- Firbank, L.G. 1993. The Implications of Scale on the Ecology and Management of Weeds. In: Bunce, R.G.H.; L.Ryszkowshi and M.G. Paoletti (eds.). 1993. *Landscape Ecology and Agroecosystems*. Lewis Publishers, pp. 91-104.
- Guba, E. and Y. Lincoln. 1989. *Fourth Generation Evaluation*. Sage Publications.
- Jongman, R.H.G.; C.J.F. Ter Braak and O.F.R. van Tongeren (eds.). 1995. *Data Analysis in Community and Landscape Ecology*. Cambridge University Press.
- Ostrom, E. 1994. Neither Market nor State: Governance of Common-pool Resources in the Twenty-First Century. *Lecture Series 2*. International Food Policy Research Institute.

- Ravnborg, H.M. and Ashby, J.A. 1996. Organising for Local-level Watershed Management: Lessons from Río Cabuyal Watershed, Colombia. *Network Paper* No.65, ODI Agricultural Research and Extension Network. Overseas Development Institute.
- Uphoff, N. 1992. *Learning from Gal Oya. Possibilities for Participatory Development and Post-Newtonian Social Science*. Cornell University Press.
- Uphoff, N. 1994. Local Organizations for Supporting People-based Agricultural Research and Extension: lessons from Gal Oya, Sri Lanka. In: Scoones, I. and J. Thompson (eds.). 1994. *Beyond Farmer First. Rural People's Knowledge, Agricultural Research and Extension Practice*. Intermediate Technology Publications, pp. 213-220.
- White, T.A. and C.F. Runge. 1995. The Emergence and Evolution of Collective Action: Lessons from Watershed Management in Haiti. In: *World Development*, Vol.23. No.10, pp.1683-1698.

## C. NOVEL ORGANISATIONAL MODELS FOR WATERSHED MANAGEMENT

*In Nicaragua the hillsides project is testing an approach to replication of the stakeholder organisation, CIPASLA, for watershed management which begins with organisation of community-based research. In Nicaragua the CIAL method is being adapted for this purpose in 1997, to provide a foundation for scaling up to watershed-level organisation in 1998. The approach includes detailed process documentation to provide guidelines and principles for organisation to other replication efforts. In 1998 this work will begin to interact intensively with the GIS analysis, soils and technology inputs from other CIAT projects to introduce experimental changes in land use, in conjunction with the CIALs.*

### UNO SE LLEVA EL VIENTO : LA FORMACION DE LOS COMITES DE INVESTIGACION AGRICOLA LOCAL EN LA SUBCUENCA DEL RIO CALICO, MUNICIPIO DE SAN DIONISIO, DEPARTAMENTO DE MATAGALPA \*

Dominga Tijerino  
María Eugenia Baltodano  
Ronnie Vernooy

#### I. Introducción

Los primeros indicios de una presencia de la Metodología CIAL en Nicaragua se registran en el año 1994, en el Departamento de Jinotega, Municipio de Pantasma. Fue el Programa Regional de Reforzamiento a la Investigación Agronómica sobre los Granos en Centroamérica (PRIAG), que identificando las necesidades de los productores agropecuarios en esa zona, lleva a cabo un proceso de fortalecimiento de sus capacidades investigativas. "La base para el desarrollo sistemático y cronológico de la capacitación fueron las cartillas de los Comités de Investigación Agrícola Local (CIAL) publicadas por el Centro Internacional de Agricultura Tropical (CIAT)." (PRIAG, Documentos Técnicos 1997). En la actualidad, desconocemos si los productores de esta zona continúan sus actividades de investigación.

Sin embargo, el proceso de formación de los CIAL's en Nicaragua, se puede decir que ha tenido dos momentos históricos. Uno de estos momentos, específicamente durante el año 1996, el Programa CIAT-Laderas desempeña un rol de promoción de la Metodología CIAL dentro de una gama de instituciones que desarrollan un trabajo comunitario y están vinculadas a PASOLAC; además con experiencia y/o afines a implementar una metodología participativa. Durante este período, dos de estas instituciones (UNICAM e INPRHU), se presentan como las más dinámicas en la formación de los CIAL's. El interés de UNICAM e INPRHU en la experimentación campesina facilitó la adopción de la metodología CIAL como parte integral de sus actividades en el campo. Un segundo momento, que es de reciente fecha,

\* This work is conjoint with PE3.

inicia en Abril del año 1997, donde el Programa CIAT-Laderas asume un role de entidad co-ejecutora en la promoción de la Metodología CIAL.

Dado que este documento ha sido elaborado como insumo de discusión para el primer Encuentro entre los equipos de CIAT de Honduras y Nicaragua, mas que brindar sugerencias y recomendaciones en relación a los CIAL's, se ha documentado esta experiencia, abordando el proceso de formación de los mismos, haciendo énfasis en aquellos aspectos relevantes que han contribuido al progreso o que han limitado dicho proceso.

CIAT Laderas ha venido impulsando la formación de los CIAL's en la Sub-Cuenca del Rio Calico, Municipio de San Dionisio, Departamento de Matagalpa. Conjuntamente con el Programa Campesino a Campesino (PCAC) de la Unión Nacional de Agricultores y Ganaderos (UNAG) han jugado un role de co-ejecutores en la implementación de la Metodología CIAL.

## **II. Preparación de las condiciones**

### **Entrenamiento de personal.**

En abril del año 1997, se realizó en la ciudad de San Salvador, un Taller Internacional Metodología "CIAL" para la Investigación Participativa, impartido por dos miembros del equipo IPRA de Cali, Colombia y donde participaron un miembro del equipo CIAT-Laderas Nicaragua y el coordinador del equipo del PCAC San Dionisio. El objetivo de enviar estas dos personas a participar en este taller, era que estas se apropiaran de la Metodología CIAL para que posteriormente pudieran replicarla en sus respectivos contextos.

En el caso del coordinador del PCAC San Dionisio, hubo un compromiso institucional entre CIAT y UNAG, de promover la formación de al menos un CIAL, durante dos ciclos continuos, en el Municipio de San Dionisio.

### **Transmisión de experiencias.**

Posterior a la capacitación recibida, estas dos personas que asistieron al Taller, brindaron una presentación al Comité del PCAC en pleno, integrado por nueve personas (una coordinadora, siete extensionistas y un asesor). Para fines de esta presentación se abordaron de manera general, los principales contenidos de la Metodología CIAL.

La Metodología CIAL consiste en la aplicación de siete pasos metodológicos, que se detallan a continuación :

1. Reunión de motivación con la comunidad.
2. Elección de los cuatro miembros del CIAL.
3. Diagnóstico y Priorización del Tema a investigar.
4. Planificación del Ensayo.
5. Montaje del Ensayo.
6. Seguimiento y Evaluación del Ensayo.
7. Análisis de Resultados.
8. Retro-información a la comunidad.

Durante la presentación, se reflexionó con los participantes sobre los conceptos básicos de la Investigación Participativa, como es la Participación y los tipos de Participación. A través de brindarles ejemplos sencillos, se trató de sensibilizar a los participantes en el conocimiento y la importancia de las destrezas de la comunicación para poder aplicar la Metodología CIAL. También se discutió sobre la

práctica de la Evaluación como una técnica para diagnosticar dicho proceso. A continuación se presentan los ejemplos que se utilizaron para abordar el tema de la comunicación y la evaluación respectivamente :

*Ejemplo 1* : Tema La Comunicación. Se pretendía que los lectores identificaran algunos errores comunes que se cometen en el lenguaje verbal y no verbal dentro de la comunicación.

#### LECTURA

Acercandose la temporada de invierno, Juana Cruz, una promotora de la UNAG-Matagalpa, se dirigió a visitar a Pedro Fuentes, un productor que vive en el Valle de Sebaco. Pedro, quien se encuentra laborando en su parcela, le explica que ya está preparado para sembrar frijol con las primeras lluvias de mayo. Juana muestra desaprobación mediante su expresión facial, le aconseja que mejor espere hasta que se normalicen las lluvias e introduce un nuevo tema de conversación, no relacionado con la siembra y el invierno. Pedro sudoroso bajo un sol ardiente continua trabajando en una posición de acuclilla, mientras Juana permanece de pie hablándole sobre un nuevo curso de capacitación que se está planificando impartir. Le pregunta a Pedro, me parece que a Usted debe parecerle interesante este nuevo curso, verdad? Continua y dice, No creo que tenga algún inconveniente de asistir, o si tiene? Pedro contesta que si le parece interesante el curso de capacitación y que no tiene ningún problema en asistir. Juana se despide diciendole a Pedro que regresará la próxima semana.

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*Ejemplo 2* : Tema La Evaluación. Se pretendía que los lectores identificaran criterios de evaluación para determinar el éxito de un CIAL y también que tomaran conciencia de la importancia de la evaluación.

#### UN CASO

El Comité de Investigación del Jícaro, Municipio de San Dionisio, integrado por hombres, hizo un ensayo comparando 4 variedades nuevas de frijol. Querían saber cuáles variedades resistían mejor las enfermedades de su zona.

Cuando evaluaron el ensayo, se dieron cuenta que el proceso del montaje del ensayo había salido muy bien, sin ninguna dificultad. Pudieron ver bien cuál variedad era fuerte y cuál no. Quedaron seguros de las conclusiones. El Comité siguió ensayando solamente con las variedades resistentes y obtuvieron buenos rendimientos en la producción. Los hombres están muy orgullosos con su ensayo.

#### OTRO CASO

El Comité de Investigación de Wibuca, Municipio de San Dionisio, integrado por hombres y mujeres, ensayaron con el cultivo de soya. En todos los lotes salieron poquitas matas. Consultaron con la comunidad y el maestro dijo conocer un grupo de experimentadores de la zona de Somoto, quienes tenían experiencia en este tipo de cultivo. El presidente del CIAL los contactó y buscaron la causa del porqué retoñaron poquitas matas. Las semillas que sembraron estaban viejas. A través de estos experimentadores, el CIAL logró obtener nuevas semillas de soya. Actualmente no se ha visto que el cultivo de soya produce grandes rendimientos. Sin embargo, en las familias que han adoptado este cultivo, se ha observado, que los niños lucen más sanos y se enferman menos.

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En cuanto a la presentación del Coordinador del PCAC San Dionisio, esta persona brindó algunas consideraciones sobre cómo aplicar la Metodología CIAL en el contexto del PCAC. También comparo

críticamente la Metodología CIAL y la metodología participativa que ha venido implementando el PCAC. Parte de sus apreciaciones fueron las siguientes :

**“La Metodología del PCAC no tiene un mecanismo claro de participación, inducen a los campesinos, ha sido una tortura”. Agrega que, ellos (refiriéndose a los miembros del PCAC) no están en capacidad de dar seguimiento a la investigación técnica. Manifestó además, que la planeación de un Ensayo es difícil y requiere mayor capacidad de los agricultores.**

Aunque existe el compromiso para continuar la discusión con los miembros del PCAC sobre la metodología CAC y la metodología CIAL y las ventajas y desventajas de cada una de ellas, estas primeras expresiones son indicadores del grado de empirismo en que el PCAC ha venido accionando.

#### Discusión de criterios y selección de las comunidades para la formación de los CIAL's.

Los miembros del equipo CIAT-Laderas conjuntamente con los tres miembros integrantes del equipo del PCAC-San Dionisio discutieron y analizaron algunos criterios que facilitarían la selección de dos comunidades para la formación de dos CIAL's, durante la época de “primera” de 1997. Las comunidades seleccionadas fueron Wibuse y El Jícaro. Los criterios fueron los siguientes :

En el caso de Wibuse

- zona alta de la subcuenca.
- comunidad indígena.
- poca experiencia organizativa.
- experiencia con Comités de Agua Potable CAP.
- asistencia de promotores del PCAC.
- poca incidencia de proyectos.

En el caso de El Jícaro

- zona intermedia de la subcuenca.
  - comunidad mestiza.
  - mayor incidencia de proyectos.
  - experiencia organizativa.
  - atendida por promotores campesinos del PCAC y por el equipo del PCAC en San Dionisio.
  - satisfactoriamente accesible.
- La selección de estas dos comunidades, establece base de comparación de la Metodología CIAL en dos sitios con características muy diferentes, esperándose obtener resultados significativos.

### Compromisos asumidos por miembros del PCAC en San Dionisio :

En las reuniones de coordinación que sostuvo CIAT-Laderas con el equipo del PCAC Matagalpa en pleno, previas y posterior al Taller en San Salvador, la coordinadora de este equipo siempre manifestó que CIAT y el equipo de trabajo del PCAC - San Dionisio debían ponerse de acuerdo para establecer las reglas de funcionamiento. Es decir, serían los mismos miembros del PCAC-San Dionisio quienes decidirían cómo sería su participación, así como también, determinar en qué medida se involucrarían en el proceso de formación y fortalecimiento de los CIAL's.

De manera que, a excepción del coordinador del PCAC-San Dionisio, quien ha firmado una carta de compromiso sobre su involucramiento en la formación de un CIAL, durante dos ciclos continuos, con los otros dos técnicos del PCAC no existe nada parecido. Con estos dos últimos, lo que existe es un compromiso verbal a involucrarse en el proceso de formación y fortalecimiento de los CIAL's en la medida de sus posibilidades. Es decir, siempre y cuando sus principales responsabilidades, para los que fueron contratados, no se vean afectadas por su involucramiento con los CIAL's.

En ese sentido, se manejó que los dos técnicos del PCAC-San Dionisio, tendrían la libre opción de acompañar dicho proceso, siempre y cuando se sintieran motivados e interesados en conocer y apropiarse de la metodología CIAL. Por lo tanto su participación estaría más relacionada con los aspectos técnicos de las labores de seguimiento.

### **III. Implementación**

En las secciones siguientes se utiliza el caso del CIAL de Wibuse, para ilustrar las características claves del proceso de formación de los CIAL's.

#### Reunión de motivación y formación de los CIAL's :

En la Comunidad de Wibuse :

Esta comunidad está ubicada en la parte alta de la montaña, aproximadamente a un mil metros de altura, y 8 kms al este del poblado principal de San Dionisio. Su población la componen alrededor de 600 personas, un poco más de 80 familias.

Para planificar este primer paso de la metodología, se hizo uso de una técnica ofrecida durante el Taller sobre Metodología CIAL, denominada 'El Flujograma'. A través de esta técnica se planifica el inicio, desarrollo y cierre de una actividad. Al mismo tiempo, facilita la identificación de los recursos que se utilizarán y se asignan responsabilidades entre los facilitadores de la actividad. En este sentido, las tareas relevantes fueron divididas entre los miembros del PCAC y del CIAT en base de un acuerdo común.

Cuando se planificaba la realización de esta actividad, se encontró una fuerte limitación : Cómo trabajar con una comunidad donde la mayoría de sus habitantes son analfabetos ? Cómo utilizar los instrumentos metodológicos que fueron proporcionados en el Taller sobre Metodología CIAL y diseñados solamente para gente que sabe leer y escribir ?

Dada la situación que se presentó, sumado a que tanto los miembros de CIAT-Laderas como los miembros del PCAC adolecen de habilidades y destrezas para trabajar con comunidades analfabetas, surgió la necesidad de buscar asesoría y asistencia técnica . Estas necesidades identificadas tuvieron respuesta a través de Nicole Pelletier, de origen Canadiense y especialista en divulgación. Con Nicole se sostuvieron sesiones de discusión para buscar la mejor manera de aproximarnos y estrechar relaciones con esta comunidad, sin correr el riesgo de herir las susceptibilidades de sus habitantes.



Al momento de realizar la reunión de motivación y formación del CIAL, donde asistieron un total de 36 personas, se logró crear condiciones apropiadas haciendo uso de varias Técnicas de Manejo de Grupo, por ejemplo, las sillas se ubicaron en círculo, de manera que las personas pudieran verse cara a cara; se estimuló la presentación de todos los asistentes a la reunión y se les pidió que manifestaran sus expectativas.

Además, se utilizó una herramienta metodológica muy sencilla, como fue la introducción de “Un Caso Real”. Este caso describe a manera de historia la experiencia de una pareja de agricultores. La historia contiene algunos elementos que sirven posteriormente para generar entre los participantes, la discusión, análisis y motivación para la formación de un CIAL. El Caso Real se introduce, haciendo uso de cinco ‘posters’ tomados de algunas de las trece cartillas CIAL, que ilustran los momentos más importantes de la historia. De esta manera, se logró establecer una dinámica exitosa que promovió la participación de las personas que asistieron a la reunión. A continuación se presenta la historia de este Caso Real :

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### UN CASO REAL

En el Municipio de San Francisco Libre viven una pareja de agricultores de nombres Agustín y Josefina. Ellos en su pequeña finca tenían problema con el cultivo de frijol. La semilla de frijol de la zona no les estaba rindiendo lo suficiente.

Agustín quien tenía un compadre de nombre Luis en el Municipio de Mateare, se fue a visitarlo con el objetivo de compartir con él su problema de la finca y ver al mismo tiempo si su compadre Luis le podía dar algunas ideas para enfrentar su problema. Resulta que el Compadre Luis le regaló unas semillas de una variedad nueva de frijol que él mismo había cultivado en Mateare y que le habían dado un buen rendimiento.

Agustín se regresó a San Francisco Libre y le contó a Josefina de las semillas de frijol que su compadre Luis le había regalado. Cuando vino la época de siembra, Agustín sembró en su finca las semillas que su Compadre Luis le había regalado. Durante la época de cosecha, Agustín y Josefina no consiguieron los resultados esperados. Resulta que la nueva variedad de frijol no se diferenció mucho de la variedad de frijol que ellos comunmente sembraban.

Poco tiempo después, durante un bautizo en la Iglesia, Agustín y Josefina comentaban con un grupo de amigos lo que les había sucedido. Resulta que algunos de estos amigos ya habían tenido experiencias similares con el cultivo de frijol. Agustín y Josefina se dieron cuenta que muchos de sus amigos estaban enfrentando el mismo tipo de problema y que aún no habían encontrado respuesta a su problema.

Agustín y Josefina decidieron juntarse con sus amigos otro día para discutir más a fondo el problema de rendimiento de la semilla de frijol y buscar soluciones alternativas a este problema. Invitaron a un técnico del INTA para que participara en la discusión del porqué la variedad de frijol que había dado buenos resultados en mateare, no presentaba los mismos resultados en San Francisco Libre. Descubrieron que las condiciones del suelo de Mateare eran diferentes de las de San Francisco Libre y que las prácticas de preparar el suelo antes de la siembra eran también diferentes. El técnico del INTA les sugirió que probaran sembrar con diferentes variedades al mismo tiempo para reducir el riesgo de pérdida.

Agustín y Josefina y su grupo de amigos identificaron la necesidad e importancia de continuar discutiendo e intercambiando experiencias alrededor del problema común que todos enfrentaban.

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El CIAL de Wibuse quedó integrado por cuatro hombres, campesinos jóvenes, todos sin ninguna experiencia organizativa previa. Lo interesante de esta elección, es que a pesar de la presencia de promotores de base del PCAC, estos no fueron propuestos por la comunidad para aspirar a ninguno de los cargos del CIAL. Los técnicos del PCAC San Dionisio se mostraron sorprendidos, y a la vez contentos, por esta selección.

Una vez que se logró la formación del CIAL, se les entregó a sus integrantes solamente la Cartilla No.2 “Los Comités de Investigación Agrícola Local”, la Cartilla No. 9 “Un Caso Real”, y la Cartilla No. 3 “El Diagnóstico”, esta última para que se fueran familiarizando con la próxima actividad a realizar.

Este último procedimiento no coincide con los pasos lógicos de la Metodología CIAL, puesto que esta última sugiere la entrega del juego total de trece cartillas a los integrantes del CIAL, desde que ocurre la formación del mismo. Sin embargo, tomando en cuenta el alto grado de analfabetismo de la comunidad, se considero conveniente limitar la cantidad de materiales escritos.

### El Diagnóstico :

Para introducir esta actividad se hizo uso de una gráfica, donde se ilustra a través de una escalera, los siete pasos de la Metodología CIAL (Ref. Cartilla CIAL No. 12, pag. 6). De esta manera se pretendía facilitar a los participantes, poder visualizar y entender mejor cada paso y la globalidad del proceso metodológico.

### Comunidad de Wibuse :

En esta actividad se presentaron dos situaciones que vale la pena mencionar. Una de estas ,un poco difícil, se presenta al momento de priorizar y votar sobre el tema de investigación para el próximo Ensayo, tomando como base una lista de temas surgidos de una lluvia de ideas brindada por los mismos participantes. La Metodología CIAL sugiere que para facilitar el ejercicio de priorización del tema de investigación, y cuando el número de participantes es mayor de veinte, estos deben dividirse en dos grupos de trabajo.

Resulta que en uno de los grupos de discusión, surgió el tema de la falta de financiamiento, considerado como uno de los principales problemas que afecta de manera general a la mayoría de los agricultores. Aparentemente, existía una fuerte expectativa por parte de los participantes en recibir apoyo o ayuda de CIAT-Laderas por esa vía. Por lo tanto, se tuvo que invertir algún tiempo tratando de aclarar a los participantes que en esos momentos no existían posibilidades en ese sentido, al menos en el marco de los CIAL's , teniendo que encaminar la selección hacia el resto de temas de investigación agrícola, factibles de investigar y evitando que predominara en la votación la falta de financiamiento. Aunque se logró que hubiera cierto entendimiento, lo más probable es que se haya generado un sentimiento de frustración entre algunos participantes.

La segunda situación, resultó un poco imprevista para los facilitadores. Uno de los grupos priorizo por Tema de Investigación, mientras que el otro grupo priorizó por Problema. Cuando se juntaron ambos grupos para llegar a consenso no se presentó ningún problema porque el Tema de Investigación había sido maíz y el Problema resultó rendimiento con el cultivo de Maíz. Situación que hubiera sido un poco más difícil de manejar, si los grupos no hubieran coincidido. Posteriormente , los miembros de CIAT y PCAC discutieron este inconveniente y se reflejó que el manejo distinto de esta actividad no afectaba el paso siguiente sobre la planeación del ensayo.

Al final de esta actividad, se les solicitó a los participantes que presentaran propuestas de lugares donde se realizarían los Ensayos. Se les mencionó tomar en cuenta el criterio de la accesibilidad de los lugares. Se propusieron tres lugares, dos de los cuales sus dueños estaban presentes y estuvieron de acuerdo. Sin

embargo, el tercer lugar fue propuesto en ausencia de su dueña, con la aclaración que esta estaba de acuerdo en prestar el terreno. Posteriormente, se notó que esta última persona no participaría en ninguna de las actividades preparativas del Ensayo.

También, se les entregó a los integrantes de los CIAL's, la Cartilla No. 1 "El Ensayo", la Cartilla No. 4 "El Objetivo del Ensayo", y la Cartilla No. 5 "La Planeación del Ensayo". Al Secretario del CIAL se le entregó un libro de actas y el Diario del Ensayo.

### La Planeación :

En los pasos de la Metodología CIAL, se indica planear los ensayos aprovechando la experiencia y práctica de los agricultores experimentados de la zona y contar con el apoyo de los técnicos. También se sugiere construir y/o definir el objetivo del ensayo .

Durante la reunión pasada que fue del Diagnóstico, los participantes discutieron el objetivo de su investigación que se expresa así : "que sea solo con maíz para que rinda, para poder vender y comer y que sea resistente a plagas y enfermedades". Además, durante esta misma actividad se invitó a todos los asistentes a participar en el próximo encuentro para la Planeación del Ensayo. Este día, tanto en Wibuse como en El Jícaro, llegó un tercio de las personas que habían sido invitadas, contando principalmente con los miembros de los CIAL's.

La Planeación se realizó en cada finca, en el propio terreno donde tomarían lugar el ensayo y las repeticiones. Ese día se contó con la presencia de uno de los técnicos del PCAC, quien facilitó y agilizó la medida del terreno de los ensayos. También se tuvo a disposición un ejemplar del "Manual de Manejo Integrado de Plagas en el Cultivo de Maíz" (publicación conjunta MIP/Zamorano/COSUDE). Con este manual, se pretendía enriquecer la discusión de los participantes y sobre todo brindar información que facilitara la toma de decisiones en relación a las variedades de semilla de Maíz que se seleccionarían para el Ensayo. Se determinó que CIAT-Laderas sería el responsable de conseguir la semilla, a través del Centro Nacional de Investigación Agropecuaria (CNIA) y del Instituto Nicaraguense de Tecnología Agropecuaria (INTA) en Managua.

Este tipo de procedimiento, de planear en el propio terreno, tuvo sus ventajas y desventajas. Por un lado, permitió conocer los sitios, para seleccionar más apropiadamente el área de los ensayos. Sin embargo, por otro lado, también significó planear bajo un día soleado, y carentes de condiciones materiales para hacer un satisfactorio recuento del diagnóstico y definición del objetivo del Ensayo. Además, se puede decir que desde este momento, los habitantes de la comunidad de Wibuse, así como de El Jícaro, que habían venido participando en las actividades anteriores, sufrieron un distanciamiento con el proceso, en términos de comunicación y seguimiento.

### Montaje del Ensayo :

Entre la planeación del Ensayo y el Montaje del mismo hubo un lapso de tres semanas, debido al retraso de las lluvias ocasionado por el fenómeno de "El Niño" (calentamiento de las aguas en el Océano Pacífico) que ha estado afectando la región Centroamericana y ocasionando una temporada de invierno bastante irregular. Es decir una entrada tardía de la estación lluviosa (primera semana de Junio) y el adelanto de un período canicular (primera quincena de Julio).

En esta actividad participaron solamente los miembros del CIAL y los tres miembros del PCAC-San Dionisio. La ausencia de miembros de la comunidad fue algo evidente.

Durante esta actividad se hizo un plan para el monitoreo y evaluación del Ensayo, es decir se establecieron fechas específicas para la realización de actividades futuras, como por ejemplo, control de maleza ; evaluación de germinación ; fertilización ; evaluación de crecimiento ; evaluación de la cosecha.

Los ensayos quedaron establecidos de la siguiente manera : la metodología CIAL , sugiere que se realice un sorteo para la ubicación de los tratamientos y el testigo.

En Wibuse :

Se esta ensayando sobre variedades de Maíz y evaluando rendimiento. Se establecieron cuatro parcelas : 10 x 5 varas, 11 surcos x 7 matas por surco, 3 semillas por golpe.

Primera Finca (pertenece al agricultor Luis Jarquín), se establecieron cuatro parcelas :

1) NB-12 ; 2) H-5 (testigo) ; 3) B-833 y 4) NB-30

Segunda Finca (pertenece al agricultor Dionisio Pérez), se establecieron cuatro parcelas : 1) NB-30 ; 2) H-5 (testigo) ; 3) B-833 y 4) NB-12

Tercera Finca (pertenece a Elba Huerta), se establecieron cuatro parcelas : 1) NB-12 ; 2) B-833 ; 3) NB-30 y 4) H-5 (testigo)

#### Seguimiento y Evaluación del Ensayo:

En la sección anterior se menciona, que un plan de seguimiento y evaluación fue elaborado el día del montaje de los ensayos, conjuntamente entre los miembros de los CIAL's, el equipo de CIAT y los técnicos del PCAC-San Dionisio. Este día los dos técnicos del PCAC se comprometieron a llevar a cabo este plan con cada uno de los dos CIAL recién formados. Además, como se había mencionado con anterioridad, en la sección de compromisos asumidos, la labor de seguimiento y evaluación en sus aspectos técnicos, es una tarea que se esperaba, fuera asumida con mayor responsabilidad por el equipo del PCAC-San Dionisio, y específicamente por los dos técnicos del PCAC.

Con las actividades de seguimiento se pretendía, por un lado, asegurar que los CIAL's dieran continuidad a una serie de tareas básicas para el buen mantenimiento de los ensayos (por ejemplo, control de maleza, fertilización, entre otras). Por otro lado, a través de una frecuencia de visitas, se esperaba mantener el grado de motivación e interés de los miembros de los CIAL's.

Por parte de los miembros del equipo CIAT-Laderas, quienes desde antes de la formación y posterior a la formación de los CIAL's, mantuvieron visitas sistemáticas al Municipio, de dos días semanales, durante este período de seguimiento disminuyeron la frecuencia de visitas.

Comunidad de Wibuse :

En esta comunidad, una primera evaluación de germinación del ensayo en base de un muestreo parcial, realizada el 8 de Julio de 1997 por uno de los técnicos del PCAC San Dionisio, brindó los siguientes resultados :

Primera finca, del agricultor Luis Jarquín :

NB-12	29 plantas existentes	60% (porcentaje de germinación)
H-5 (testigo)	30 plantas existentes	62% (porcentaje de germinación)
B-833	13 plantas existentes	27% (porcentaje de germinación)
NB-30	35 plantas existentes	73% (porcentaje de germinación)
X de los porcentajes : 55%		

Segunda finca, del agricultor Dionisio Pérez :

NB-30	39 plantas	81%
H-5 (testigo)	42 plantas	87%
B-833	20 plantas	42%
NB-12	23 plantas	48%

X de los porcentajes : 64%

Tercera finca, de la agricultora Elba Huerta :

NB-12	47 plantas	98%
B-833	43 plantas	90%
NB-30	43 plantas	90%
H-5 (testigo)	38 plantas	79%

X de los porcentajes : 89%

Posterior a esta primera evaluación y en la primera oportunidad que se presentó, el equipo CIAT discutió con el equipo del PCAC-San Dionisio el desarrollo del Plan de seguimiento y evaluación de los CIAL's. Además, se contempló la posibilidad de formar otros dos CIAL's en la época de postrera.

Las consideraciones que plantearon los miembros del equipo del PCAC fueron diversas y todos compartían sus diferentes puntos de vistas. Abordaron el factor tiempo como una limitante en la labor de seguimiento. Según ellos, de todos los pasos de la escalera, el seguimiento es el que requiere mayor tiempo y de no dedicarle el tiempo necesario, la gente pierde el interés. Mencionaron como ejemplo, el caso del CIAL de Wibuse "formarlo no requiere mucho tiempo, pero sí mucho seguimiento, sobre todo la gente nueva (refiriéndose a las características de sus integrantes, gente sin experiencia, sin proyección) como Wibuse, pierden el interés".

Un aspecto muy importante que es necesario resaltar, es la sugerencia por parte del equipo del PCAC, de establecer un criterio nuevo de cara a la formación de los nuevos CIAL's. Según ellos, los nuevos CIAL's deben formarse en comunidades donde sus habitantes sean gente responsable, de manera que los CIAL's puedan funcionar solos o con poca ayuda "como en El Jícaro, que la gente es responsable y se preocupa por sus ensayos".

Con respecto a lo planteado con anterioridad, es preciso aclarar que el equipo de CIAT no comparte las consideraciones planteadas por los miembros del PCAC-San Dionisio, porque no se pretende introducir o difundir la Metodología CIAL únicamente con personas que ya poseen experiencia organizativa, aún cuando resulte bastante cómodo hacerlo. Proceder de esta manera, significaría discriminar una gran cantidad de personas que no han tenido el espacio, las condiciones y la oportunidad de poder mejorar sus vidas.

Un mes después a esta primera sesión de evaluación entre el equipo de CIAT y el equipo del PCAC-San Dionisio, se sostuvo otro encuentro evaluativo con los integrantes del CIAL de Wibuse, aunque en esta ocasión se invitó a participar a un miembro del CIAL de El Jícaro. Esta invitación se hizo hasta cierto punto, para poder confrontar dos tipos de experiencias, un CIAL con un buen funcionamiento con otro que estaba presentando dificultades.

Antes del encuentro, se llevaban ciertas expectativas, como eran, la necesidad de re-elegir a algunos miembros del CIAL de Wibuse que no estuvieran cumpliendo con su cargo, y además, era muy probable que no se continuaría con un ensayo de postrera.

A este encuentro evaluativo solamente asistieron diez personas de la comunidad, incluyendo los miembros del CIAL. Estos últimos hicieron un recuento del ensayo de primera, mencionaron como uno de sus principales problemas, la falta de apoyo de la comunidad. Según los miembros del CIAL, invitan a los habitantes de la comunidad, pero estos no asisten a las actividades. También presentaron el siguiente resultado de los ensayos ; en relación al total de plantas sobrevivientes :

Primera finca, del agricultor Luis Jarquín :

NB-12	54 plantas
H-5 (testigo)	49 plantas
B-833	33 plantas
NB-30	59 plantas

Segunda finca, del agricultor Dionisio Pérez :

NB-30	55 plantas
H-5 (testigo)	94 plantas
B-833	32 plantas
NB-12	42 plantas

Tercera finca, de la agricultora Elba Huerta :

NB-12	99 plantas
B-833	88 plantas
NB-30	46 plantas
H-5(testigo)	64 plantas

El miembro del CIAL de El Jicaro contó su experiencia, considerada como satisfactoria, en términos del apoyo recibido de la comunidad, buen funcionamiento de los integrantes, buena convocatoria, buenas relaciones y apoyo con otros organismos. Esto se hizo con el sano juicio de motivar a los miembros del CIAL de Wibuse a hacer algo parecido. Seguidamente, el coordinador del PCAC San Dionisio, reforzó el trabajo de motivación argumentando que “aquí el trabajo organizativo está iniciando, nada se ha perdido...la comunidad hasta que no ve resultados no se integra”.

Es posible que este espacio de reflexión haya tenido un impacto inmediato, dado que los miembros del CIAL de Wibuse se mostraron entusiasmados en continuar un nuevo ensayo de postrera con frijol. El tesorero de este CIAL manifestó “hay que empujar la carreta para ver qué sale al final...lo importante es seguir invitando a la comunidad, este trabajo social hay que seguirlo”.

Existe consciencia que la decisión de continuar apoyando y fortaleciendo el CIAL de Wibuse con un ensayo de postrera, se sale del marco de condiciones recomendables que sugiere la metodología IPRA. Sin embargo, entre las justificaciones que se consideraron para tomar esta decisión están, la de realizar además de un trabajo organizativo también formativo de estos jóvenes sin experiencia previa en estos asuntos.

Finalmente, es importante mencionar que en la labor de seguimiento no se ha brindado suficiente atención a los CIAL's en aspectos relevantes como el mejoramiento de la organización interna, procedimientos de trabajo, registro de actividades, acuerdos tomados entre miembros del CIAL, entre otras cosas.

#### **IV. Aspectos relevantes que han contribuido al progreso de formación de los CIAL's :**

1. Las actividades de colaboración y ayuda entre CIAT y el PCAC-Matagalpa, que se enmarcan dentro de un convenio de colaboración, ha permitido el establecimiento de condiciones mínimas, que han garantizado una satisfactoria introducción del Proyecto CIAT en la zona de estudio.
2. La asistencia y asesoría que el Proyecto CIAT ha brindado al equipo del PCAC, en asuntos metodológicos, como por ejemplo, el diagnóstico, la experimentación, ha contribuido a crear un espacio de discusión sobre la Metodología CIAL dentro de la UNAG.
3. El liderazgo de los promotores del PCAC en las comunidades de Wibuse y El Jícaro ha tenido una influencia positiva. Esta red de promotores jugo un role importante en la motivación y convocatoria de los habitantes sobre todo de las primeras actividades (motivación, formación del CIAL, diagnóstico y priorización). La asistencia y participación activa de estos promotores en las diferentes actividades, ha contribuido a facilitar entre los participantes un mejor entendimiento sobre la importancia de los CIAL's.
4. Contar con el apoyo técnico de los dos miembros del PCAC San Dionisio, ha permitido complementar los conocimientos de los miembros del equipo de CIAT, lograndose un manejo satisfactorio en aquellas actividades que requieren experiencia práctica y conocimiento técnico en materia agrícola.
5. El interés de CIAT por capacitar y entrenar a los miembros del PCAC San Dionisio en el manejo adecuado de Cuencas Hidrográficas, permite estimular constantemente a los mismos por el trabajo que están realizando. Además, se pretende ir creando condiciones para la formación de una visión integral, que permita accionar en base a una política de manejo integral de Cuenca, y en base de una Red de organizaciones locales en que los CIAL's deberían jugar un papel activo y significativo.
6. Un intercambio de experiencias en relación a los CIAL's, entre promotores del INPRHU, miembros de CIAT y dos miembros del equipo PCAC San Dionisio, ha sido de vital importancia. Por un lado, permite conocer mejor los tipos de problemas que comúnmente experimentan los CIAL's, así como posibles soluciones a los mismos. Por otro lado, cuando se ha tenido éxito en el proceso, motiva a otros a continuar realizando acciones para el avance y fortalecimiento de los CIAL's. Se espera crear otras oportunidades para el intercambio de experiencias con los CIAL's, incluyendo a los integrantes de los CIAL's y miembros de las comunidades.

#### **V. Resumen de las principales limitaciones encontradas en el proceso :**

1. La Metodología CIAL proporciona muy pocos elementos técnicos e instrumentos metodológicos para trabajar con comunidades donde la mayoría de sus habitantes son analfabetas.
2. Las cartillas no reflejan la realidad ni las características del campesinado Nicaraguense. Aparentemente, dichas cartillas son difícilmente entendibles y asimilables para los agricultores. A manera general, los técnicos enfrentan problemas al utilizar este tipo de material didáctico. Es importante mencionar, que no existe tradición en el país de trabajar con materiales escritos. Además, existe gran escasez de materiales de extensión rural.

Otra limitación en relación a las cartillas, consiste en el desorden en que actualmente se encuentran sus numerales no permite planificar de una forma ágil y ordenada el proceso de formación y seguimiento de los CIAL's.

3. No se han establecido todavía, mecanismos para mantener el vínculo entre los miembros de los CIAL's y la comunidad, de manera que la comunidad siempre esté informada y participando en las actividades que los CIAL's están realizando.

4. El margen de tiempo en que se han venido realizando las cinco primeras actividades de la Metodología CIAL no ha sido del todo satisfactorio. Es decir, la presión del tiempo no ha permitido brindar más de un día en la realización y consolidación de cada actividad.

Tampoco ha permitido hacer una revisión, discusión y adaptación de los documentos técnicos, que fueron creados para facilitar la apropiación por parte de los miembros del CIAL de todo el proceso y garantizar su sostenibilidad. Por ejemplo, Registro de Actividades, Diagnóstico Participativo con Agricultores, Formato para la Planeación de Ensayos con CIAL's.

5. La carga de responsabilidades que tienen que sobrellevar los promotores del PCAC como parte de su trabajo, ligada al poco hábito de estos promotores de organizar acciones coordinadas con instituciones contrapartes o proyectos de colaboración, no permite muchas veces darle continuidad a las actividades de manera satisfactoria.

6. La actividad relacionada con la priorización del tema de investigación, es posible que cause inconformidad o en el peor de los casos frustración en algunas personas que participan y que no ven realizadas sus expectativas.

7. Participación de las mujeres/aspectos de género : es una tarea difícil, que hasta el momento no hemos podido realizar satisfactoriamente.

## **VI. Consideraciones Finales :**

A través de esta descripción y análisis crítico sobre el proceso de formación de los CIAL's, se ha intentado, por un lado, resaltar aquellos aspectos que han contribuido al progreso de dicho proceso, por otro lado, identificar las principales limitaciones y dificultades que se han presentado en el mismo.

Se puede afirmar, que aún con todas las limitaciones técnicas y metodológicas que se han mencionado anteriormente, el proceso de formación de los CIAL's se ha venido impulsando satisfactoriamente. En un lapso de seis meses se ha logrado la conformación de tres CIAL's y se ha avanzado, en dos de ellos, hasta la etapa de seguimiento y evaluación de los ensayos. También se ha iniciado la documentación de esta experiencia.

Aunque se considera que todavía es muy temprano para abordar el impacto que los CIAL's están teniendo a nivel local, al menos ha habido disposición por parte del PCAC San Dionisio y de CIAT para formar un CIAL's más en la estación de postera del presente año. Este tercer CIAL se formó en la Comunidad de Piedras Largas, ubicada en la zona baja de la subcuenca. En la actualidad existe la iniciativa para formar un cuarto CIAL en la primera de 1998, integrado solamente por mujeres, en la comunidad de El Jícaro. Además, se están haciendo preparativos para montar un segundo curso de la Metodología CIAL para 1998, donde se pretende que la mayoría de los participantes sean miembros del PCAC Matagalpa.

Otra actividad que se considera contribuirá al fortalecimiento de los CIAL's, es el involucramiento de los estudiantes del 5to. año de la Facultad de Recursos Naturales (FARENA), de la Universidad Nacional Agraria (UNA), de quienes se espera a través de sus prácticas de campo, una interacción efectiva entre estos y los agricultores, y una integración del conocimiento local, a través del proceso de experimentación de los CIAL, con el conocimiento científico.

Analizando rápidamente el rol de la UNAG, específicamente de todos los miembros del PCAC, existe una ambigüedad de intereses, por un lado, existen algunos escepticos en relación a la conveniencia de utilizar la metodología CIAL, y por otro lado, están los miembros del PCAC-San Dionisio quienes demuestran un significativo interés por aprender lo positivo de esta metodología.



En el caso del proyecto CIAT-Laderas, está comenzando a ampliar su radio de acción dentro del Municipio, específicamente, con la Alcaldía Municipal. El Alcalde de San Dionisio le ha solicitado a CIAT participar en los esfuerzos y preparativos de un Proyecto Municipal de Reforestación de la Sub-Cuenca del Río Calico. Este tipo de relación se visualiza, entre otras cosas, como una oportunidad que se puede aprovechar para estimular un vínculo entre la Alcaldía y los CIAL's con miras a la sostenibilidad de los mismos.

Finalmente, existe una buena disposición por parte de CIAT Nicaragua, en mejorar los resultados del trabajo que se ha venido realizando en relación a los CIAL's. Por lo que se considera sumamente necesario discutir y analizar en el Primer Encuentro de equipos de CIAT Nicaragua y Honduras, los problemas más comunes que se han presentado en el proceso de formación de CIAL's, de manera que se busquen alternativas adecuadas para cada situación y en cada país.



## D. LINKING PARTICIPATORY RESEARCH TO GIS DATABASES: POVERTY MAPPING

Scaling up from local perceptions of poverty to regional poverty profiles  
– developing a poverty profile for Honduras

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October 1997

There is a growing awareness of the need to listen to what local and especially poor people themselves have to say about poverty (e.g. Chambers 1988; Jazairy *et al.* 1993). As an example, the World Bank has found it necessary to conduct so-called participatory poverty assessments to complement more conventional poverty assessments based on externally defined measures of poverty as lack of income or low expenditures (e.g. World Bank 1995; 1996a; 1996b). Techniques exist for obtaining insight into local perceptions of poverty. Most well-known is perhaps the well-being ranking technique which has been applied in numerous settings around the world (e.g. Silverman 1966; Grandin 1988; IED 1992; Ravnborg 1992; World Bank 1995; Scoones 1995).

Various methodological obstacles have, however, prevented local perceptions of poverty from providing the *basis* for poverty assessments. Rather than as the *basis*, insights gained from participatory poverty

assessments tend to serve as *additions* to more conventional poverty assessments. First among these obstacles is the location specific nature of people's perceptions of poverty which is claimed to make it difficult to compare and contrast results of participatory poverty assessments across locations, particularly at the regional and national level (Baulch 1996). Second, as pointed out by Baulch, little has been said so far about how to aggregate local people's perceptions of poverty so as to determine the overall level of poverty say in a region or in a country.

Based on work carried out primarily in Tanzania and Colombia, we have been working to develop a methodology to overcome these shortcomings of participatory poverty assessments (Boesen and Ravnborg 1993; Ravnborg and Guerrero, *forthcoming*). Early 1997, we began to test the methodology in Honduras<sup>4</sup>, this time at a regional scale. The present paper presents the results to date of this work which is still in progress.

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• This work is conjoint with PE3.

4 The work in Honduras is carried out with support from the Inter-American Development Bank (IDB) and Danida. The methodology is presented in a series of workshops in which both the Honduran team (Rosa Escolán, Fernando Mendoza (left the team September, 1997) and Miguel Angel Méndez (joined the team September, 1997) and the Nicaraguan hillsides team (Ronnie Vernooy, María Eugenia Baltodano and Dominga Tijerino) assist. Alongside with the work carried out in Honduras, the Nicaraguan team is implementing the methodology in the Río Callico watershed in Matagalpa, Nicaragua. This paper, however, only reports on the work carried out in Honduras.

### EXTRAPOLATING AND QUANTIFYING LOCAL PERCEPTIONS OF POVERTY

THE METHODOLOGY DESCRIBED IN THIS PAPER AIMS TO DEVELOP A COMPREHENSIVE POVERTY MEASURE THAT REFLECTS THE MULTI-DIMENSIONAL AS WELL AS THE DYNAMIC NATURE OF POVERTY. AT HEART OF THE METHODOLOGY IS THE INQUIRY INTO LOCAL PERCEPTIONS OF POVERTY (OR WELL-BEING, ITS ANTITHESIS), AND THAT SUCH LOCAL PERCEPTIONS RATHER THAN EXTERNALLY DERIVED UNDERSTANDINGS OF POVERTY SHOULD FORM THE BASIS FOR A MORE GLOBALLY APPLICABLE POVERTY (OR WELL-BEING) INDEX. THE METHODOLOGY ITSELF IS ABOUT HOW TO EXTRAPOLATE AND QUANTIFY SUCH LOCAL POVERTY PERCEPTIONS TO DEVELOP A REGIONAL POVERTY PROFILE. THE METHODOLOGY IS DEVELOPED WITH REFERENCE TO RURAL AREAS, E.G. REGIONS, DISTRICTS OR WATERSHEDS WHERE SMALL-SCALE AGRICULTURAL PRODUCTION PREDOMINATES. BELOW FOLLOWS A STEP-WISE DESCRIPTION OF THE METHODOLOGY ACCOMPANIED BY THE RESULTS OBTAINED IN HONDURAS TO DATE.

### SELECTING SITES FOR INQUIRIES INTO LOCAL PERCEPTIONS OF POVERTY SO THAT EXTRAPOLATION IS POSSIBLE

BEFORE SETTING OUT TO INQUIRE INTO LOCAL PERCEPTIONS OF POVERTY, SITES, OR RATHER COMMUNITIES WHERE TO UNDERTAKE THIS INQUIRY HAVE TO BE SELECTED. THIS SHOULD BE DONE IN A WAY THAT ENABLES SUBSEQUENT CONSIDERATION OF THE EXTENT TO WHICH POVERTY PERCEPTIONS ENCOUNTERED CAN BE EXTRAPOLATED TO THE WHOLE AREA OF INTEREST.

Rather than seeking to identify some sort of 'average perception' of well-being and a related 'average set of indicators', the emphasis at this stage should be to identify *as distinct perceptions of well-being as possible* in order to later be able to *validate* a possible extrapolation of these perceptions to the entire study area. Thus, the sites should be selected according to a *maximum variation sampling strategy*. The rationale is that *if* major similarities in terms of the indicators used to describe different levels of well-being are found across the selected communities, despite these being selected from a principle of maximum variation, *then* these indicators can be assumed *valid* for the entire set of communities from which the selected communities were sampled.

This, however, does not answer the question of *which* and *how many* sites to choose. To answer these questions, assumptions are needed with respect to which *factors* are important determinants for the possible existence of different perceptions and indicators of well-being, i.e. what conditions the variation. The factors that are chosen to guide the site selection are referred to as *sampling factors*. In the case of Honduras, six such sampling factors were identified (table 1):

Table 1

**Sampling factors for the Honduras study**

<i>Altitude:</i>	<i>Accessibility (to urban centre with &gt;2000 inhabitants)</i>	<i>Basic services (education and water)</i>
<ul style="list-style-type: none"> <li>• &lt;500 m</li> <li>• 500-1000 m</li> <li>• &gt;1000 m</li> </ul>	<ul style="list-style-type: none"> <li>• good (&lt;2 hours)</li> <li>• regular (2-6 hours)</li> <li>• poor (&gt;6 hours)</li> </ul>	<ul style="list-style-type: none"> <li>• acceptable</li> <li>• regular</li> <li>• poor</li> </ul>
<i>Ethnicity</i>	<i>Gender composition</i>	<i>Population density</i>
<ul style="list-style-type: none"> <li>• Ladino (non-indigenous)</li> <li>• Lencas</li> <li>• Payas</li> <li>• Indios El Paraiso</li> <li>• Misquitos</li> <li>• Garifunas</li> <li>• Indios Santa Barbara</li> <li>• Xicaques</li> <li>• Chortis</li> <li>• Sumos</li> </ul>	<ul style="list-style-type: none"> <li>• 48-52% men and women</li> <li>• &gt;52% men</li> <li>• &gt;52% women</li> </ul>	<ul style="list-style-type: none"> <li>• high (&gt;54 pers/km<sup>2</sup>)</li> <li>• medium (21-54 pers/km<sup>2</sup>)</li> <li>• low (&lt;21 pers/km<sup>2</sup>)</li> </ul>

- **Altitude**

Altitude was considered as proxy for agro-ecological zone. Different altitudes condition the growth of different crops which again influences people's livelihood systems and thus possibly their perception of well-being. The altitude factor was computed on the basis of a topographic map of Honduras.<sup>5</sup>

- **Accessibility**

Accessibility influences the degree of contact with the surrounding society. It was therefore assumed that people living communities with difficult accessibility to a higher degree might preserve a unique identity, including a unique concept of well-being. The accessibility factor was computed on the basis of information of road quality and slope.

- **Basic services**

The presence of educational facilities might influence people's concept of well-being through introducing new values, both the value of literacy in itself and through opening up new horizons. The basic services factor was computed, combining an educational index (percentage of population who is illiterate and percentage of the population who have attended school for 5 years or less) and a water and sanitation index (percentage of houses which does not have water supply or have water supply at a distance of 100 meters or more from the house and percentage of houses that have different types of sanitation).

- **Ethnicity**

It was assumed that different ethnic groups might have different value systems which among other things could impact upon perceptions of well-being and poverty. The ethnicity factor was computed on the basis of a map indicating areas with indigenous population (Atlas Geográfico de Honduras, Ediciones Ramses). Using this method tends to overestimate the number of communities having a predominantly ethnic population. An attempt was done to use 1988 population census data on autochthonous languages spoken. However, as

<sup>5</sup> The computation of the sampling factors and the subsequent characterization of aldeas according to different combinations of sampling factors was done by Paloma Urbano, CIAT GIS Unit.

many if not most ethnic groups in Honduras today speak Spanish, this was found to be poor indicator of presence of ethnic groups.

- **Gender composition**

Gender composition was taken as a proxy for the economic opportunities offered in the area. An overweight of male population was taken as an indicator of male in-migration due to the existence of employment opportunities such as plantations, whereas an overweight of female population was taken an indicator of male out-migration. Such employment-migrations might influence local concepts of well-being, e.g. by making values such as family unity more explicit. The gender composition factor was computed on the basis of data from the 1988 population census.

- **Population density**

Population density was taken as a proxy for overall pressure on resources, particularly land. As land becomes scarce, it was assumed that land ownership would feature more prominently in the local perceptions of well-being and poverty. The population density factor was computed on the basis of data from the 1988 population census and by dividing the national territory using Thyessen's polygons.

Apart from taking into consideration the influence that each of the sampling factors has in isolation, it is necessary also to consider the *interaction* that might exist between them. As an example, high population density in combination with good accessibility might condition the existence of different well-being indicators from high population density in combination with poor accessibility.

Using a GIS, all communities (*aldeas*) in Honduras were characterized according to the above six sampling factors. In theory, the six sampling factors give rise to 2,430 different combinations. However, in Honduras *only* 394 of these combinations were actually present.

Given available resources, it was decided that sampling should be conducted only in three departments: Atlántida, El Paraíso and Yoro. This further reduced the number of different combinations of sampling factors to 193 corresponding to 662 communities (see table 2). A sample of 90 communities (*aldeas*), 30 in each department, was drawn from this population of 662 communities, using a maximum variation sampling strategy in order to include as many and as different combinations of sampling factors as possible: First, 15 communities were selected in each department, based on criteria of geographical spread (a minimum of one community from each municipality) and representing different (but not necessarily contrasting on all sampling factors) combinations of sampling factors. Second, for each selected community, a community was selected which to the maximum extent possible contrasted the initially selected community. For each department this procedure resulted 15 pairs of contrasting communities and a much higher representation of different combination of sampling factors in the sample (calculated as the proportion between the number of combinations of sampling factors and the number of communities) than in the three departments as a whole (please see table 2). Although the 90 community sample only comprise 2% of the total number of communities in Honduras, it comprises 20% of the combinations of sampling factors.

Table 2

Number of communities (*aldeas*) and combinations of sampling factors, Honduras

	Number of communities ( <i>aldeas</i> )	Number of combinations of sampling factors	Number of combinations of sampling factors as proportion of number of communities
Honduras	3,545	394	0.11
Atlántida	223	67	0.30
El Paraíso	231	114	0.55
Yoro	208	67	0.32
Atlántida, El Paraíso & Yoro, <i>combined</i>	662	193	0.29
Sample	90	79	0.88

Likewise, as can be seen from table 3 which shows the frequency of the various sampling factor options, the sampling factor options that appear at a low frequency in Honduras, as well as in the three study departments, such as altitudes above 1000 m or poor accessibility, have a relatively high frequency in the sample (*sample as % of 3 departments*).

The same combinations of sampling factors present in the 90 community sample are, however, also present outside the sample and outside the three departments from which the sample was drawn. Map 1 shows all communities in Honduras. The 90 communities included in the sample are indicated by red dots. Communities which have a combination of sampling factors contained in the 90 community sample are indicated by blue dots. Finally, the yellow dots represent communities which have combinations of sampling factors that are not present within the 90 community sample. Thus the map shows that even though the sample is drawn from only three departments, the results obtained can be extrapolated to a rather large part of Honduras<sup>6</sup>. The large areas where there are no blue dots are mainly areas whose population belong to ethnic groups that due to the geographical specificity of this factor are not contained in the 90 community sample. This is particularly the case for the area in Copán inhabited by the Chortis and the area in Lempira, Intibuca and La Paz which is inhabited by the Lencas.

#### UNDERTAKING WELL-BEING RANKINGS IN SELECTED COMMUNITIES TO ELICIT LOCAL PERCEPTIONS OF WELL-BEING

The well-being ranking is a technique for obtaining insight into local perceptions of well-being and thereby poverty, and for eliciting the indicators that are used locally to describe different levels of well-being. The technique was developed by Silverman to study prestige in an Italian community in the 1960s (Silverman 1966) and has later been modified and described by Barbara Grandin (1988) in her field manual *Wealth Ranking in Smallholder Communities*.

In each community, a set of cards is prepared where each card represents a household. Three to five informants are selected and asked individually to group the cards into piles according to how he or she perceives the level of well-being or quality of life of the households, represented by the cards. The informant is asked to make a minimum of three piles. After having ranked all the cards (or households), the informant is asked to characterize each pile of households, i.e. to describe how the households within each pile resemble each other and how they differ from households contained in the other piles. The descriptions made by the informant are carefully recorded. In order to distinguish between descriptions given by the informant and those directly or indirectly elicited by the researcher,

<sup>6</sup> The final decision with regard to extrapolation, however, depends upon the results of the correlation analysis of use/non-use of the identified well-being indicators, on the one hand, and the sampling factors/community characteristics, on the other (please see below).

the researcher should only ask additional or clarifying questions about the households in each pile once the informant has described *all* the piles. In order later to be able to assess the degree to which informants agree with respect to a given household's level of well-being, the rank given to each household is noted. The piles are numbered from 1 to P, where P is the total number of piles made by the informant, in descending level of well-being so that pile 1 represents the households enjoying the highest and pile P the households suffering the lowest level of well-being.

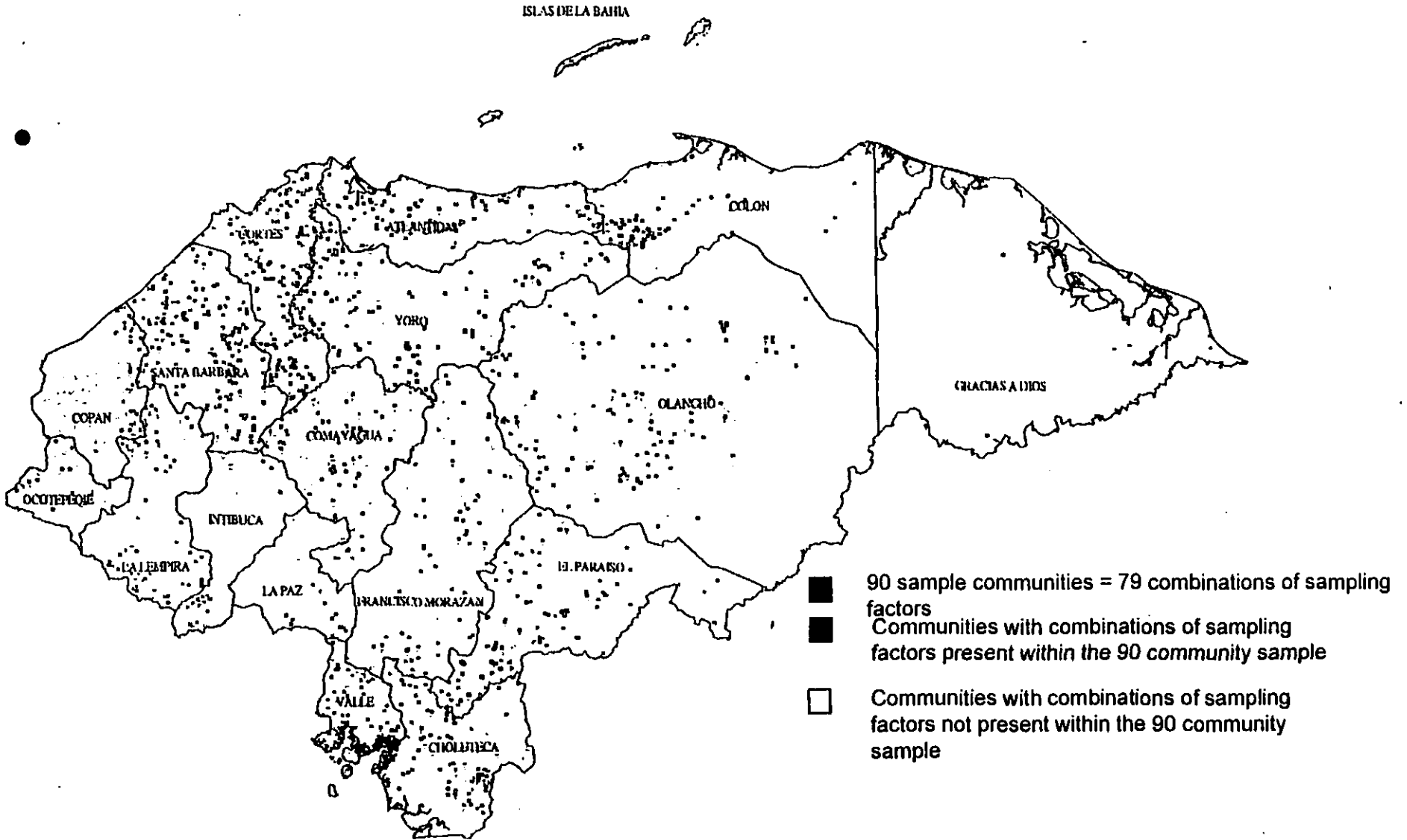


Table 3  
 Sampling factors for Atlántida, El Paraíso and Yoro, *combined*, and for sample  
 Number of communities

	Altitude			Accessibility			Basic services			Ethnicity				Gender composition			Population density		
	<500 m	500-1000 m	>1000 m	good	regular	poor	acceptable	regular	poor	Ladinos	Garífunas	Indios del Paraíso	Xicaques	48-52% men & women	>52% men	>52% women	high	medium	low
Honduras*	1375	1320	850	2757	739	49	1083	1419	1043	3039	124	34	43	1415	1652	478	1175	1193	1177
Atlántida, El Paraíso & Yoro, <i>combined</i> (N=662 communities)	387	211	64	504	148	10	235	252	175	493	104	34	31	230	366	66	176	229	257
Sample (N=90 communities)	44	27	19	54	33	3	29	33	28	45	15	15	15	28	42	10	20	34	36
<i>Adjustment according to field observations</i>				49	24	17				83	2	0	5						
Sample as % of 3 departments	11.4	12.8	29.7	10.7	22.2	30.0	12.3	13.1	16.0	9.1	14.4	44.1	48.4	12.2	11.5	15.2	11.4	14.8	14.0
* In addition to the four ethnic groups mentioned in the table, five other ethnic groups exist in Honduras (number of communities in brackets): <i>Lencas</i> (95); <i>Chortis</i> (203); <i>Misquitos</i> (4); <i>Payas</i> (2) and <i>Sumos</i> (1)																			

**Map 1**

**Sample communities in perspective, Honduras**



As with the communities, the informants were selected so as to be as different as possible with respect to age, gender, occupation and ethnicity – factors, hypothesized to influence people’s perception of well-being. Table 4 below summarizes the characteristics of the 316 informants who participated in the study by sharing their perception of well-being.

**Table 4**  
**DESCRIPTION OF INFORMANTS BY AGE, GENDER, ETHNICITY AND**  
**OCCUPATION (N=316)**

Age		Gender	
=<25 years	9%	men	51%
26-45 years	57%	women	49%
>45 years	35%		
Ethnicity		Occupation (N=289, data is missing for 27 informants)	
Ladinos	96%	farmers	26%
Garifunas	2%	day-labourers	15%
Xicaques	3%	house wives	32%
		businessmen	15%
		crafts workers	6%
		professionals	7%

Rankings were conducted in 89 out of the 90 sample communities. One community was not willing to participate in the study.

***Grouping households into average well-being categories***

Instead of having to operate with a number of individual rankings for each community, it is practical to summarize these into an ‘average’ ranking for each community. To do so, the ranks given to each household should be transformed so as to allow them to be put on an equal scale, say from 0 to 100, where 0 represents the highest and 100 the lowest level of well-being. This is done by computing a well-being score, S, based on the rank given to the household by each informant, using the formula:  $S = p-1/P-1 * 100$ , where ‘p’ is the rank or the number of the pile to which the household is assigned, and ‘P’ is the total number of piles made by the informant. The multiplication by 100 is made simply in order to avoid operating with decimals. On this basis, an average score can be calculated for each household as the average of the scores obtained by the household in the individual rankings. Moreover, the level of agreement between the individual rankings can be checked. This should be done through a pair-wise comparison of the scores obtained in the individual rankings, using Spearman’s rank order correlation test (Spearman’s Rho). Only if there is a significant level of agreement between the rankings, we can proceed to group the households in average well-being categories for each community.

In the case of Honduras, significant pair-wise correlation was found between all the rankings in 87 out of the 89 communities. The remaining two communities were subsequently excluded from further analysis.

***Assessing the extent to which local perceptions of well-being can be extrapolated***

In order to assess the extent to which the perceptions of well-being identified in a few communities can be applied to describe the well-being of households in neighboring communities, it is necessary to compare the well-being descriptions identified in the selected communities.

Basically, the comparison of the descriptions identified in the sample communities is done by reading through *all* the descriptions of the well-being piles given by the informants and extracting the indicators used. Preferably this should be done by more than one person in order to ensure the *reliability* of the 'translation' or rather 'reduction' of *descriptions* to *indicators*. Having translated the descriptions into indicators, a count is made of the number of times these indicators are used in the different communities to describe different levels of well-being. This can be done using a matrix form<sup>7</sup> in which the indicators are listed as rows and counts are made in the columns, distinguishing the informant using the indicator, which community he or she comes from and the well-being level which the indicator was used to describe. This permits the assessment of the *degree* of consistency in the use of indicators according to level of well-being and, when combined with the sampling factors, according to community characteristics. On this basis, it is possible to identify one or more set(s) of indicators according to which the entire population of the mandate area can be characterized in terms of well-being and thus should form the basis for a more comprehensive poverty measure.

In Honduras, the 316 descriptions of well-being were translated into almost 400 indicators. However, only around 100 of these were used by more than 5% of the informants.

Table 5 shows some of the most frequently used indicators by theme and according to the well-being level which they were used to describe. From the table, it appears that there is considerable agreement among the informants with respect to which well-being level the different indicators are used to describe.

The analysis of the use of indicators by community or rather by community characteristics is, however, more complicated. Not all the indicators are used in all of the communities. Hence, the question is whether there is any systematic pattern as to in which type of community, characterized by the sampling factors, a given indicator is used and in which type of community it is not used.

As can be seen from table 5, many of the indicators within a theme are very similar or indicate different extremes of the same capacity. An example of rather similar indicators is the indicator I204 (businessmen) and the indicator I175 (some are businessmen) while the indicators I39 (own little land) and the indicator I36 (own a lot of land) are examples of indicators describing different extremes of the same capacity, land ownership. Therefore, it was decided to analyze the indicators by theme rather than one by one. The indicators were correlated with the sampling factors using the non-linear canonical correlation analysis procedure available in SPSS<sup>8</sup>. This analysis allows the correlation of two or more sets of variables at different measurement levels. All indicators belonging to a theme<sup>9</sup> were entered as one set of variables and the six sampling factors were entered as a second set of variables. The result of this analysis is presented as a series of plots in which the distance between the points tells how closely correlated these points are.

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7 e.g. a spreadsheet like excel or lotus.

8 Statistical Package for Social Sciences

9 The database was organized on the basis of the community. For each indicator, information was tabulated as *used* (=1) or *not-used* (=2). For the sampling factors, each community was characterized according to the options listed above in table 3, taking into account the adjustments based on field observations with respect to accessibility and ethnicity. Altitude, accessibility, services and population density were entered as ordinal variables and gender composition was entered as a multiple nominal variable. As a result of these adjustments, the ethnicity factor was excluded from subsequent analysis due to the low number of communities with considerable indigenous population (2 garifuna communities and 5 xicaque communities).

Table 5

## Most frequently used indicators by theme and well-being level

Percent of communities where used and number of times used to describe highest, middle and lowest level of well-being

(Indicators written in italics are included because they form part of a theme that is frequently mentioned, although as individual indicators they have low frequencies)

Code	Description	Percent of aldeas where used	Number of times used to describe:		
			highest level of well-being	middle level of well-being	lowest level of well-being
I209	Day-laborers	97	1	38	217
I202	Farmers	53	47	51	4
I196	Don't day-labor	34	22	17	3
I203	Farmers and day-laborers	26	0	18	12
I188	Women do house work in other families	21	0	3	24
I187	Women prepare and sell food	20	1	5	15
I439	Uncertain employment	56	1	13	61
I441	Certain and own employment	43	34	19	1
<b>e besides farming</b>					
I181	Crafts workers	41	25	35	12
I183	Professionals	29	33	7	0
I317	More income sources	25	32	0	0
I204	Businessmen	69	87	39	7
I207	Middlemen for agricultural products	36	40	6	2
I175	Some are businessmen	28	17	16	2
I330	Some have shops, etc.	28	17	16	2
I110	Children support the household	38	13	16	21
I297	Some receive remittance from relatives	28	22	13	6
I40	Own land	93	164	78	7
I31	Don't own land	78	3	12	108
I39	Own little land	54	1	61	11
I36	Own a lot of land	47	55	4	1
I9	Some rent land (with I18)	55	4	21	58
I34	Plant on other person's land	33	0	12	31
I63	Own only the house and the <i>solar</i>	33	0	9	34
I291	Have pastures	24	23	2	0
I23	<i>Give land in rent</i>	15	11	4	0
I206	Cattle owner	86	203	19	2
I92	Own cattle	86	203	19	1
I96	Own little cattle	43	7	41	2
I83	Don't own cattle	32	1	25	9
I360	Produce and sell milk or derivatives	33	38	8	3
I266	Plant beans	77	95	83	21
I282	Plant little beans	24	0	11	16
I273	Plant maize	85	108	108	35
I285	Plant little maize	34	0	13	28
I264	Plant coffee	36	61	24	1
I252	<i>Plant rice</i>	17	14	14	4

I261	Plant sugar cane	15		5	0
I263	Plant cocoa	13		9	0
I270	Plant vegetables	11		9	1
I288	Plant cassava	11	4		2
<b>eral</b>					
I315	Have money	75		7	0
I304	Don't have money	22	1	2	
I474	Lack resources	25	0	6	
I309	Have savings in the bank	16		1	0
I428	Some live on community charity	13	0	0	
I431	Help people with little resources	13		5	0
<b>arming</b>					
I404	Lack resouces to farm the land	25	0	7	
I393	Buy with difficulty a bit of inputs	20	1	5	
I220	Some don't plant	13	0	4	
<b>Resources for necessities (health and education)</b>					
I457	Don't have capacity to meet necessities	21	0	3	
I471	Have capacity to respond to necessities	22		8	0
I169	Problems to meet health needs	29	0	1	
I464	Give primary education (with difficulty)	13	4		
I461	Cannot give primary education	9	0	1	
I465	Give secondary education (with difficulty)	8		6	1
<b>ork equipment</b>					
I327	Have a car	37		3	0
I324	Some have a car	8			0
I325	Don't have a car	5	0		0
I362	Have transportation for goods/passenger	8		0	0
<b>Work with institutions</b>					
I216	Work with institutions	20			1
I415	Some have had access to credit	20		9	1
I423	Members of cooperatives/organizations	11			1
<b>Food and nutrition</b>					
I296	Have problems in getting sufficient food	63	0	5	
I294	Don't have problems in getting sufficient food	43			3
<b>Basic grains (maize and beans)</b>					
I443	Have to buy basic grains	52	1	16	
I154	Harvest for home consumption	56	24		12
I162	Have surplus for sale (with I382)	60	66	36	5
<b>Housing</b>					
I57	Have their own house	71	50	3	30
I52	Don't own their house	53	0	5	
I46	Some don't own their house	43	0	5	
I45	Rent house	33	2	0	30
I59	Have a good house (with I55)	62	80	33	5
I58	Have a well-finished house	24	25	2	0
I54	Have a poor-quality house (with I62)	53	1	12	61
<b>Characteristics</b>					
I98	Some are single parents	56	0	8	6
I140	Single person households	26	0	0	27
I148	Have many children	55	2	13	58
I137	People of age	28	2	3	27

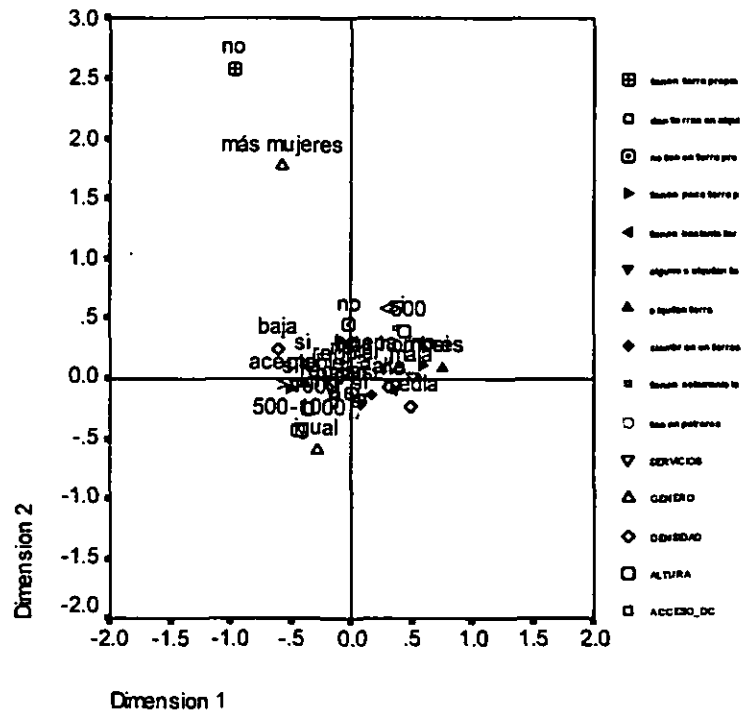
I102	Young couples	22	3		
I150	Have problems with drunkenness etc.	22	0	0	
<b>ers</b>					
I435	Contract day-laborers	56	57	12	0
I449	Don't contract day-laborers	10	0		
I425	Some contract day-laborers	9	1		1
I91	Own chicken	40	21	9	6
I90	Own pigs	36	27	15	4
I87	Own work animals	38	17	9	0
I85	Own animals	25	22	10	1
I78	Don't own animals	22	0	8	

Figure 1 below shows one of the plots resulting from the non-linear canonical correlation analysis of the indicators relating to land ownership and the sampling factors. It shows the centroids<sup>10</sup> for all options or modalities of the variables included in the analysis. As can be seen all points, i.e. all options for the involved variables, except two are situated very close to the centre between the two dimensions. This indicates that there is no

significant correlation between any of these variables, and thus that there is no pattern with respect to in which type of community the involved indicators are used and in which type they are not used. There is, however, an exception from this pattern: the point representing communities where the indicator *own land* (I40) is *not* used and the point representing communities with populations of more than 52% women. These two points are situated relatively close to each other and far from the centre of the graph. This indicates a possible correlation between these two situations, i.e. that the indicator *own land* (I40) tends not to be used in communities where there are more than 52% women.

Looking at the correlation between the use/non-use of the indicator *own land* (I40) and the sampling factor *gender composition* (table 6), it appears that three out of the six

communities where the indicator *own land* was not used were characterized by having more than 52% women. However, seven out of the ten communities in the sample<sup>11</sup> where there was more than 52% women the indicator *own land* (I40) was used. Therefore, in the case of the indicators relating to the land



**Figure 1**

**Use of land ownership indicators by sampling factors**  
*Centroid plot, non-linear canonical correlation analysis*

<sup>10</sup> The centroids are the averages of all objects belonging to the same category.

<sup>11</sup> In this and all other analyses made of the use of indicators only 87 communities were included, cf. earlier comments.





*basis, it is determined which indicators (or sets of indicators) can be extrapolated to the entire study area and which cannot. For the Honduras study, this analysis is still in process.*

**Towards an overall poverty (or well-being) profile**

**– making the well-being indicators quantifiable**

The indicators which can be applied to the entire study area should now be quantified in order to provide the basis for the development of an overall poverty or well-being profile. One and probably the most practical way of doing this is through a questionnaire survey. By formulating questions that will tell us e.g. if a given family has problems in getting food, own very little land, day-labor a lot and live in a poor house, etc. or some combination hereof, we will be able to determine the proportion of the population enjoying or suffering the various levels of well-being. This is so, provided that the questionnaire is administered to a *representative* sample of the entire population.

Besides aiming to develop a poverty profile, the project of which the research is a part has the objective of improving the natural resource management and particularly of improving the understanding of the relationship between poverty and natural resource management. For this reason, it was decided to not only to include questions related to determining well-being levels into the questionnaire, but also to include questions related to natural resource management strategies pursued by poor and not-so-poor farmers. Moreover, it was decided to draw four independent samples (see table 7): One sample from each of the three watersheds where CIAT is working and one sample for Yoro department. The watershed samples are all asked questions related both to well-being and to natural resource management strategies whereas the department sample is only asked questions related to well-being. The result will be four separate, but mutually comparable poverty profiles. The surveys are currently being conducted and will be terminated by the end of November 1997.

**Table 7****Sampling methods, sample sizes and themes covered by questionnaire**

Area	Population size (# households)	Sampling method	Sample size	Type of questionnaire
<i>Watersheds:</i>				
• Río Saco (Atlántida)	721	} Simple random sampling	260	WB & NRM
• Cuscateca (El Paraíso)	859		270	WB & NRM
• Tascalapa (Yoro)	2,149	3 stage cluster sampling** (50 aldeas, 130 caseríos)	330	WB & NRM
Yoro Department	65,912*		500	WB
* This figure includes population of urban centres				
** Before starting the sampling, all urban centres were excluded.				

Codes have been assigned to the households included in the samples in a way which enables the identification of households that were included in the well-being rankings. This allows a comparison between the way in which these households were ranked during the well-being rankings and according to the quantifiable well-being indicators, respectively, and thus provides for validity checking of the well-being index (see below).

#### Constructing a single poverty (or well-being) index

Having decomposed the concepts of well-being provided by the local informants into quantifiable well-being indicators, the task now is to *reconstruct* a regionally applicable poverty or well-being index, i.e. combine the quantifiable well-being indicators into a single 'measure' of well-being. In doing so, it is important that the meaning, i.e. the way in which the indicators were originally used by the informants to describe the different well-being levels, is preserved. One thing that has to be remembered is that rather than being used as strict criteria defined on beforehand for grouping households in different well-being piles, the indicators emerged in retrospect after the piles were constructed as partial descriptions of the more complex feature of well-being, using phrases such as "...most households in this group...", "...some families, etc. Moreover, as shown in table 5 summarizing the use of some frequently used well-being indicators identified in the 90 community sample, certain indicators are used to describe high levels of well-being while others are used to distinguish middle and low levels of well-being.

Based on these principles, a score system can be developed. The score system assigns a score to each household for each individual indicator. The household well-being index is thus defined as the mean of the scores that a household obtains on each indicator. This has the advantage that different combinations of scores on the individual indicators or variables may result in the same well-being index value.

The scoring system operates with three levels of scores (33, 67 and 100), corresponding to the three levels of well-being (highest, middle and lowest, respectively). Table 5 helps to assign scores for the individual indicators. As an example, the indicator *day-labourers* (I209) is used as an indicator of lowest level of well-being. In this case, households where the household head's main occupation is as day-labourer would then receive a score of 100. The indicator does not, however, allow us to distinguish between households enjoying respectively highest and middle levels of well-being. All other households therefore receive a score of 67 points.

### **Checking the internal and external logic of the well-being index**

Before actually proceeding to use the well-being index, it is necessary to assure that the internal as well as the external logic of the well-being index conform with the descriptions of different levels of well-being as well as the rankings made by the informants.

#### *Checking the internal logic of the well-being index*

Checking the *internal* logic means assuring that the individual indicators contribute to the overall well-being index in the way they were intended to. One – and probably the simplest way of doing this – is by studying the deviation from the overall mean well-being index value caused by variation in each of the index-constituting variables. Another and more sophisticated way of checking the internal logic of the well-being index is through studying the relationship between the index-constituting variables (the indicators) through a homogeneity analysis<sup>13</sup>. This analysis allows us to analyze possible patterns of correlation between more than two variables, if for instance, two or more of the indicators consistently express the same thing and of which one, therefore, could be judged redundant.

#### **Checking the external logic of the well-being index**

Checking the *external* logic of the well-being index means examining the level of correspondence between the well-being index and the ranking-based well-being scores. This can be done using the Spearman's rank order correlation test (Spearman's Rho) individually for each of the communities where well-being rankings were undertaken. In case there is no strong correlation between the well-being index and the ranking-based well-being score, this is an indication of failure to construct the well-being index so that it captures the different levels of well-being as described by the informants. The well-being index therefore has to be reconsidered.

#### *Defining index-based well-being categories and making the regional poverty profile*

Having assured that the well-being index corresponds with the ranking-based well-being score and categories, we should now look for how to define categories based on the well-being index so that these index-based categories to the maximum possible extent would correspond to the ranking-based categories.

### **Conclusion**

The methodology described above allows us to overcome two problems: First, it provides insight into local perceptions of what poverty (or well-being) mean and thus to identify the poor as well as the not-so-poor according to such local perceptions rather than externally derived understandings of poverty. Second, it allows the assessment of the extent to which such local perceptions can be extrapolated and provides a tool for actually undertaking this extrapolation by quantifying the well-being indicators so as to produce a regional poverty profile. It thereby helps overcome the problem of 'aggregation' associated with participatory approaches to measuring poverty pointed out by Baulch (1996).

Making use of household sample surveys for constructing the regional poverty profile, it furthermore becomes possible to link such surveys to existing census data as well as to include additional questions, e.g. relating to natural resource utilization etc. and to include such data into geo-referenced databases (GIS). This provides an excellent basis for more comprehensive studies of the poverty - environment relationship that are needed to substantiate (or refute) currently held hypotheses.

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13 Homogeneity analysis is available in SPSS and is similar to a multiple correspondence analysis.

## References:

- Baulch, Bob. 1996. Neglected trade-offs in poverty measurement. *IDS Bulletin*, Vol. 27, No. 1, pp. 36-42.
- Boesen, Jannik and Helle Munk Ravnborg. 1993. *Peasant production in Iringa District, Tanzania*. CDR Working Paper 93.1. Copenhagen: Centre for Development Research.
- Chambers, Robert. 1988. *Poverty in India: concepts, research and reality*. Discussion Paper 241. Sussex: Institute of Development Studies.
- Grandin, Barbara. 1988. *Wealth Ranking in Smallholder Communities: A field manual*. London: Intermediate Technology Publications.
- IIED. 1992. Special Issue on Applications of Wealth Ranking. *RRA Notes* Number 15. London: International Institute for Environment and Development.
- Jazairy, Idriss, Mohiuddin Alamgir and Theresa Panuccio. 1992. *The state of world rural poverty. An inquiry into its causes and consequences*. International Fund for Agricultural Development. London: Intermediate Technology Publications.
- Ravnborg, Helle Munk. 1992. *Resource-poor Farmers: Finding them and diagnosing their problems and opportunities*. Paper presented at the 12<sup>th</sup> Annual Farming Systems Symposium, September 13-18, 1992, Michigan State University.
- Ravnborg, Helle Munk and María del Pilar Guerrero. *Forthcoming*. Poverty profiles for designing and evaluating rural research and development activities. A methodology. Cali: Centro Internacional de Agricultura Tropical.
- Scoones, Ian. 1988. Learning about Wealth: An example from Zimbabwe. In: *RRA Notes* Number 2. London: International Institute for Environment and Development.
- Silverman, Sydel F. 1966. An Ethnographic Approach to Social Stratification: Prestige in a Central Italian Community. In: *American Anthropologist*, 68, pp.899-921.
- World Bank. 1995. Kenya Poverty Assessment. Report No. 13152-KE, Population and Human Resources Division. Eastern Africa Department, Africa Region.
- World Bank. 1996a. Nigeria. Poverty in the Midst. of Plenty. The Challenge of Growth with Inclusion. A World Bank Poverty Assessment. Report No. 14733-UNI. Population and Human Resources Division. Western Africa Department. Africa Region.
- World Bank. 1996b. Eritrea. Poverty Assessment. Report No. 15595-ER. Population and Human Resources Division. Eastern Africa Department, Africa Region.

## PROJECT OUTPUT:

19  
1 MAR. 1998

# GERMPLASM ASSESSED FOR ACCEPTABILITY TO FARMERS, USING PARTICIPATORY METHODS IN PLANT BREEDING

### Activities:

- *Develop participatory plant breeding strategies and improve the quantitative analysis of farmer preference data.*
- *Provide methodological support and training for participatory evaluation of genetic resources, breeders' nurseries, segregating populations, and advanced lines (linked to IP-1, IP-2, IP-3, and IP-5).*
- *Derive farmers' criteria for acceptability of new germplasm and ensure regular feedback from farmers to plant breeders.*

### A. A SYSTEMWIDE PROGRAM INTERNATIONAL WORKING GROUP ON PARTICIPATORY PLANT BREEDING \*

#### *PARTICIPATORY PLANT BREEDING WORKING GROUP*

#### WORKPLAN

#### Outputs

The five-year workplan developed by the participatory plant-breeding group (PBG) specifies four main outputs:

- Effective participatory methods in plant breeding assessed and developed, with focus on farmer's breeding; plant selection (segregating lines); and variety selection (fixed lines).
- Beneficiary groups accurately involved and targeted.
- Effective organization for operationalizing participatory breeding in the research process identified and developed.
- User access to products of participatory breeding assured through identification of effective organizational forms and links to supporting seed services.

#### *Activities*

The proposed activities for achieving these outputs include: inventorying and comparing existing participatory breeding strategies across crops and environments; implementing empirical studies for comparing different strategies; assessing the impact of various strategies on different types of users, in

particular poor farmers and rural women; analysis of the costs of different participatory approaches and ways of institutionalising participatory plant breeding, with especial attention to local seed systems; dissemination of results and methods in the form of guidelines for breeders (including farmer breeders), research managers, development professionals and policy makers.

\* *Activities in this area are also reported in the mid term report of the systemwide program.*

The empirical studies of PPB were given a powerful foundation by a series of grants associated with the establishment of this systemwide program, which were made by IDRC's "Saving Biodiversity Program to a number of CGIAR Centers and to the "Using Diversity" network in Asia, including: CIMMYT: CG Maize Diversity Conservation: A Farmer-Scientist Collaborative Approach; (\$250,000.00CAD), ICARDA: Farmer Participation in Barley Breeding (\$219,370.00CAD), Salvatore Ceccarelli; IPGRI: Scientific Basis of In-situ Conservation of Agricultural Biodiversity (\$241,910.00CAD); IRRRI: Component of the System Wide Initiative on Rainfed Rice in Eastern India (\$220,000CAD).

### *Specific Objectives for 1997*

- Conduct an analysis of the "state of the art" in participatory plant breeding (PPB) in CGIAR Centers, other types of institutions and in farming communities, through commissioned papers, email conferencing, and focussed expert consultation workshops;
- Derive a framework for comparative analysis of existing approaches, and for identifying knowledge gaps and high priority needed research;
- Develop guidelines for funding new empirical studies, and implement in 1997 a small grant program to address these knowledge gaps with a focus on comparative experimentation with new approaches;
- Disseminate information and enhance dialogue among practitioners and users of PPB in a wide diversity of institutions.

### **PROGRESS BY MID-YEAR**

Significant progress on these objectives has been achieved since the PBG started work in April, 1997.

#### *E-mail conferencing on concepts and current practice in PPB*

A Work Group facilitator, Dr. Louise Sperling, was contracted. An initial email conference (PBG@cgnet.com) was set up to unite those interested in participatory approaches in breeding. The 50-member group is drawn from Africa, Asia, Latin America and Europe, and, aside from CG has healthy representation from the NARS, university and NGO sectors. The first two exchanges have focused on defining the broad outputs, which might be achieved by PPB approaches and on formulating hypotheses, and indicators which might link to such outputs. Breeders, economists, sociologists, and development workers are engaged in these exchanges.

A second list-serve has been set up directly in response to increased interest in one approach to PPB called "farmer breeding", that is, when scientists and development workers strive to build on farmers on systems of breeding, varietal selection and seed maintenance. To-date, thirty people have explored the initial question "what exactly is farmer breeding" "what might it look like, what are its components?." While there is small overlap with the first group (i.e. those mainly trained in formal sector breeding), this second dialogue is being spearheaded by the NGO and university sector, with a small but important voice from CG/NARS scientists.

The purpose of both dialogues is to add value to what practitioners are already implementing or planning to do.

#### **Commissioned Papers on State of the Art in PPB**

In May, the PBG prepared the Terms of Reference for three papers focusing on research design issues in PPB. Two of these have been commissioned, with the third contract about to be awarded.

The terms of reference for commissioned papers have been designed, circulated and approved by the Planning Group and the more general SWP constituency. They focus on a) technical and institutional issues when farmers join in formal breeding work; b) technical and institutional issues when scientists support farmers' own breeding and c) the gender and user issues as they cross-cut both. The aim of these papers is to synthesize our "state of the art" in these three realms, to assess the range of options available and to highlight issues and gaps which need priority work.

The overview of technical and institutional issues in farmer-led PPB (that is, when scientists seek to support farmers' own systems of breeding, varietal selection and seed maintenance) is being done by Shawn McGuire (Wageningen Agricultural University) and Gigi Manicad (Biotechnology and Development Monitor). They have had significant support from the Farmer Breeding-L email network. The first draft of this paper will be available early October.

The overview on technical and institutional issues in formal-led PPB (that is, when farmers join in breeding experiments which have been initiated by formal breeding programs) will be carried out by Margaret Smith (Cornell) and Eva Weltzien (ICRISAT). We plan to have a first draft by early March, 1998. Again, the email network will give all a chance to share views on very specific research design issues as well as on more general conceptual themes.

Papers on state of the art will be published and also available from the Program's Home Page on the WWW (to start up in January, 1998).

### **Workshops on PPB Research Design Issues**

Two research design workshops have been completed within this period. The first, held in Kenya in mid-May, was designed specifically to help African NARS (in this case, those of Zaire, Ethiopia and Tanzania) conceptualize an appropriate PPB strategy, define a research framework and methodology, and identify the practical requirements for getting started. The second, held in the Netherlands, late June, brought key experts together to consider issues of research design and to help move some of the tougher PPB methodological and institutional issues forward. This expert consultation, which gave equal focus to approaches in which farmers join formal breeding experiments and those in which scientists support farmer breeding, developed a broad comparative framework for PPB projects, set guidelines for rigorous research design across sites, and started to flesh out hypotheses and indicators which should cross-cut PPB experiments to permit truly comparative analyses globally. The insights of the second consultation will be freely available and widely published to help inform fledgling work worldwide.

### **Working Paper "Guidelines for Participatory Plant Breeding"**

A first draft of this guide is now available. It is drawn from our Cali Meeting in September 1996, the Hague expert Consultation in June 1997 and email networks exchange. The guide is provisional and meant to be sharpened and revised through use. The guide looks at the various options for supporting farmer breeding and for more effective involvement of farmers in formal sector breeding programs. It discusses in detail the different phases of a PPB initiative: setting goals, deciding which germplasm to use, which farmer skills to build on, joint evaluations, seed system support.

### **Inventories of PPB work-in-progress**

In order to get the widest possible coverage, the PBG has been actively linking up with other breeding, farming systems and agricultural development networks to enhance, not duplicate efforts. A summary of the PBG work was widely circulated in the first FAO-sponsored Plant Breeding Newsletter-Email--(with the editor remarking that it was only item to stimulate vigorous exchange). The PBG is also linking with

IDRC's field-based "Using Diversity" Network in Asia through joint list-serves, and has been able to tap into such conferences as that of "Agriculture and Human Value" to share information. Inventories of PPB work are showing that there are many PPB efforts "on the ground" being brought into the dialogue about best practices.

We have started to gather material on PPB projects around the world, so as to get an idea of the scope of work; strengthen our partnerships; and build a library of information for more general use. We call these 'inventories' although we are using a format which is dynamic and which gives equal voice to the both small, local, farmer-driven programs and the larger, multi-institutional PPB programs which aim for wide geographic coverage. We will make these syntheses widely available by beginning of next year. At present, we have identified about 50 programs in total (both farmer- and formal-led PPB). Those wishing to share insights on specific programs are welcome to do so through the PBG as a whole or via the facilitator, L.SPRLING@cgnet.com

## **FUTURE PLANS**

In the next six months, the PBG will pursue in-depth four major issues identified as critical during the start up period.

- *A comparative framework* will be finalized to allow partners to assess the state-of-the art in methodology and organizational innovation of PPB--and to re-assess gaps identified during two previous consultations. This will be accomplished through completion of: a) inventories of PPB programs, conducted interactively with practitioners in the field, and b) commissioned papers on technical and institutional issues in participatory plant breeding, from both the formal-led and farmer led perspectives (2 papers).
- *Key field-based studies and programs* sponsored by the SWP PRGA will be initiated during this period preceded by an open, broad-based solicitation of proposals and screening by an Expert panel and the Planning Committee of the SWP PRGA. Proposals will be funded based on criteria set by the 'Task Force on Partnership' (Cali 9/96) and the 'Expert Consultation on Research Design Issues in Participatory Plant Breeding' (Hague 6/97).
- *Methods and Design Issues for PPB Impact assessment* will form the third thrust and be explored through: commissioning of key papers; and face-to-face consultation between impact/evaluation experts and field practitioners. The theme is particularly complex as PPB outcomes can be quite diverse (e.g.: biodiversity enhancement; better targeting of women/users' needs; cost-efficiencies in research) and trade-offs among potential impacts need to be considered.
- *Hearing Farmer-Breeders' Voices* a study to document farmer breeding will be initiated, the program will sponsor workshops among farmer-breeders interactions among farmer-breeders and other breeders; in-depth interviews with key farmer breeders and joint field analysis of farmer-breeding methods.



## **Systemwide Program on Participatory Research and Gender Analysis**

### **Technical and institutional issues in: Participatory Plant Breeding**

#### **Done from the perspective of Farmer Plant Breeding**

#### **Consultancy contract: Terms of Reference**

### **I. Purpose**

The purpose of this consultancy is to prepare a report which analyzes the technical, organizational, and institutional issues associated with programs which build on farmers' own plant breeding practice. As the ultimate aim is to guide the development of practical, field initiatives, the consultant should seek to highlight in as much detail as possible the rationale for choice of methods/strategies and institutional links as well as the consequences of choices made.

By 'farmer breeding', we are looking for examples of work in which the ongoing process of selection, seed management and germplasm conservation, as well as actual plant breeding, is carried out by farmers according to their own techniques, procedures and criteria of success, and to meet their own objectives. Outsider involvement will be primarily oriented to understanding what farmers do and to adding to farmers' own ongoing efforts.

Programs which explicitly seek to build on farmers' own breeding are relatively few in the research and development (R&D) domain and, when they do flourish, rarely deliver products which reach the formal, peer-reviewed literature. Recognizing this special nature of farmer breeding work, the SWP will hire consultants to deliver several major outputs associated with farmer breeding:

First, the *analytical paper* (Stage 1, and outlined in the body of these TOR) will describe the current range of programs/projects which support farmers' own breeding. Based on existing information and initial interviews with those giving support, the consultant will analyze key technical, organizational and institutional issues in farmer plant breeding programs in terms of:

- what has been done and with what implications (an analysis, rather than a simple inventory)
- general lessons learned
- gaps
- suggestions/insights for filling gaps

The focus of this consultancy should be on R &D programs which have systematically sought to build on farmers' own breeding skills and contexts to achieve larger results. We are not speaking here of isolated farmers' individual experiments (however interesting these may be).

As a second step (Stage 2), based on guidance from the analytical paper, the SWP will hire a consultant to orchestrate *Conversations with Farmer Breeders* in different regions of the world. These interviews, along with proposed mini-workshops among farmer breeders, aim to give greater public voice to farmer breeders and to facilitate their direct input into formal breeding work, and in particular to SWP PR/GA work.

In brief, the consultant for the analytical paper will be broadly asked a) to review what kinds of farmer breeding research programs exist and b) to set up a framework and interview guidelines for original exploration of farmer-breeder views. Based on her/his performance and interest, the consultant hired for the analytical paper may be also invited to help execute Stage 2.

The TOR below focus only on Stage 1: the writing of the analytical paper.

## **II. Main topics for analytical paper**

The consultant should:

1. Identify projects or programs building on farmers' own breeding, and select cases which represent different approaches, in consultation with the network. Explicitly state (or elicit) overall objectives of each case study. Breeding strategy/methods, institutional options and seed systems should be analyzed in terms of overall objectives.
2. Analyze how crop type (self-pollinated, open and vegetatively propagated) influences farmer involvement in the breeding strategy, institutional options and seed system links.
3. Analyze how the environments (agro-ecological, socio-economic, and political) in which farmer plant breeding programs take place (eg marginal? market-driven?) influence breeding strategy, institutional options and seed system links.
4. Analyze how farmer breeders are identified (with use of what criteria and especial attention to their resource base and gender); how they are described and how they are selected and contacted. What initiative do farmers have in setting up the work; what is their role in implementation and in evaluating results; what decisions do they make?

## **III. Overview of subjects to be covered**

### *A. Breeding Strategy and Experimental Methods*

1. review and critique technical division of tasks and responsibilities among farmers, formal breeders or other development workers. What kind of outside support needs have farmers articulated--if any:
  - i. the review should group together experiments in plant selection (with segregating lines) and experiments in variety selection (fixed lines);
  - ii. review should distinguish among kinds of outside support given at different stages of the varietal development process, eg a) during initial crossing or selection b) after populations have stabilized
2. in relation to the breeding objectives of the program, critique specific breeding strategies:
  - i. relate strategies to crop type;
  - ii. compare and contrast type(s) of environment addressed;
  - iii. relate strategies to farmers' overall priority goals (and explore whether different types of farmers may have different breeding objectives);

- iv. discuss whether strategy might be applicable to meet several goals; eg. production increase and biodiversity enhancement, other farmer-defined objectives.
3. review specific screening and testing methods which farmers have found most helpful, and those which they find least helpful--or irrelevant. Do different types of farmer-breeders (including men/women) prefer different screening and testing methods?
  4. identify prerequisites for using any particular strategy, ie critical success or failure factors.
  5. compare and contrast how different types of farmers (particularly gender, class, caste, ethnic-differentiated, groups) were involved in the farmer breeding programs.
    - i. highlight which farmers' actually carry out the technical work; and how they relate/link with larger community of potential users (particularly gender-differentiated users).
    - ii. describe how the lead collaborators were identified.
    - iii. supply information on numbers of those directly involved, those immediately influenced by program, and those influenced in the longer-term. Where possible, indicate what kinds of users are affected at each level (especially gender-differentiated).
    - iv. describe how the program has evolved: have the same farmers taken the lead, has there been a rotation, etc. Do different farmers fill different roles? how and why?

*B. Institutional options and organizational forms in farmer plant breeding*

1. analyze types of current institutional and organizational arrangements under which farmer plant breeding is being carried out (or newly- envisaged options). Identify full range of types. In which contexts has the approach particularly flourished?
2. analyze current ways in farmer plant breeding is funded (and, again, newly envisaged options). Link type of funds to scale of program.
3. analyze how current institutional options and organizational forms limit/encourage participation of full range of user groups (including gender-differentiated users) in farmer breeding work.
4. analyze how current institutional options and organization forms encourage/limit scale of farmer plant breeding in one site and extension to other sites. Have there been efforts to increase coverage: why or why not? Look at both technical factors (eg discrete niches) as well as socio-economic (eg well-delimited social groups).

*C. Farmer/Formal experimentation*

1. review and analyze how farmers' own experimentation has or has not been complemented by formal experimentation. What are the implications of farmers' own methods for shaping the kinds of support which formal (or 'outsider') programs might have to offer?

*D. Seed System Links: to both the formal and informal seed systems*

1. describe how current farmer plant breeding programs have sought to move the a) skills learned in their research and b) the products of their research. Have informal seed system links been effective?

why or why not? Are informal systems associated with particular user groups? Have the formal system links been explored?--with what effects

#### ***E. Typology of Farmer Plant Breeding Projects***

**An aim of this consultancy should be distinguish among the major forms of farmer plant breeding. Try to develop a typology which ties breeding strategy and organizational divisions to crop type, environment and priority goals—or to other variables deemed relevant through this consultancy review. What strategies seem to be working best where?**

According to the consultant's discretion, the typology can either be introduced at the beginning of the paper--and serve as the framework for discussion of the subsequent themes (for example, define the institutional context and overall objectives as the starting point, then look at breeding strategy and experimental methods, farmer links with formal research, etc.) Alternatively, the typology can emerge at the end, as a result of study of the analysis and comparison of the many and varied case studies.

#### ***F. Interview Guides for "Conversations with Farmer-Breeders"***

A final aim of this consultancy will be to prepare the way forward for exploring stage 2: "Conversations with farmer-breeders". Tasks will include:

- i: Preparing a list of possible farmer-breeder contacts, or intermediaries who can help identify farmer-breeders.
- ii: Preparing an interview guide which explores key questions raised by the analytical review. This should be sorted by theme (eg. breeding methods, seed system links) and particularly highlight gaps identified in our "overall state of knowledge" as revealed by the analytical review.

#### **IV. Sources for material**

1. The published material will offer some insights into how farmers (and particularly farmer groups) have been supported in their own farmer plant breeding experiments. Not all authors will refer to farmer-first involvement as "farmer plant breeding": this is a fairly recent term.
2. The grey literature will also need to be *systematically consulted*: reports: unpublished conference papers, internal project circulars, etc. Grey literature should be collected, inventoried, and delivered to the SWP coordination for use by members.
3. As the focus here is on methods, (and particularly reflections on methods, not just descriptions), one of the greatest sources for insights will be through corresponding with those involved in innovative breeding projects. As much as possible, this should be done by email and fax (with the former particularly encouraged). No field visits can be financed under this consultancy.
4. The consultant's search for Farmer Plant Breeding --which is supported by outsiders--should be inclusive (NARS, NGO, grassroots' work). Work of members of the SWP/Participatory Plant Breeding Group should especially be reviewed, although the search for innovative participatory plant breeding projects should go beyond the SWP.

## V. Consultancy report

### Timing

1. The first draft of this consultancy report should be delivered within three months of awarding the contract. Final draft should be delivered within four weeks of receiving formal comments from SWP reviewers.

### Assignment of Copyright

2. In consideration of the fee paid, the consultant will assign to the Systemwide Program (with CIAT as convener) any copyright which she/he/they may have to the works (including documents or report/s) produced while executing the contract.

Furthermore, any documents or reports produced while executing this contract may not be reproduced or otherwise disseminated by the consultant without the prior written consent of the Convener of the Systemwide Program on Participatory Research and Gender Analysis.

### Length

3. 50 pages (exclusive of references, appendices and collection of grey literature). Report should aim to be pithy, with presentation of guidelines, major lessons, and key insights in easily readable forms (highlight by use of boxes is recommended). Outstanding case studies might also be highlighted in box form.

### Links with SWP

4. The consultant should maintain frequent communication with the participatory plant breeding working group facilitator and interim drafts should be shared with the facilitator at regular intervals to be defined with the consultant.
5. The consultant should consult with the Gender Working Group facilitator especially to identify farmer breeding programs which have been effective at including/being responsive to different types of users.

### Fee

6. \$US 5,000.00

## **Systemwide Program on Participatory Research and Gender Analysis**

### **Technical and institutional issues in: Participatory Plant Breeding**

#### **Done from the perspective of Formal Plant Breeding**

#### **Consultancy contract: Terms of Reference**

### **I. Purpose**

The purpose of this consultancy on technical and institutional issues in participatory plant breeding is to guide the development of practical, field research programs. As such, the consultant(s) should seek to highlight in as much detail as possible the rationale for choice of methods/strategies and institutional links as well as the consequences of choices made.

The overall aim of this consultancy is not just to review and analyze what has been done, but also to improve on current practice and future. Where there are gaps, these should be explicitly highlighted. Where other research or disciplinary programs might help better inform the participatory plant breeding, these, too, should be signalled.

In brief, we need of analysis of key technical and institutional issues in participatory plant breeding in terms of:

- what has been done and with what implications (an analysis, rather than a simple inventory)
- general lessons learned
- gaps
- suggestions/insights for filling gaps

### **II. Main topics for paper**

The consultant(s) should:

1. Identify projects or programs using participatory plant breeding, and select cases which represent different approaches, in consultation with the network. Explicitly state (or elicit) overall objectives of each case study. Breeding strategy/methods, institutional options and seed systems should be analyzed in terms of overall objectives.
2. Analyze how crop type (self-pollinated, open and vegetatively propagated) influences farmer involvement in the breeding strategy, institutional options and seed system links. Explicit attention should be paid to the involvement of various users according to crop type (men/women, farmers/processors, etc.)
3. Analyze how the environments (agro-ecological, socio-economic, and political) in which participatory plant breeding experiments take place (eg marginal? market-driven?) influence breeding strategy, institutional options and seed system links.

### **III. Overview of subject to be covered**

#### **A. *Breeding strategy and Experimental Methods***

1. review and critique technical division of tasks and responsibilities among breeders and farmers (rationale for, implications);
  - i. review should group together experiments in plant selection (with segregating lines) and experiments in variety selection (fixed lines);
  - ii. review should compare and contrast stages in which farmers are involved (with attention to which types of users, including gender-differentiated users, are involved at different stages);
  - iii. review should distinguish divisions technical divisions at different stages a) diagnosis of preferences and needs b) actual crossing or selection on experimental stations c) selection on-farm
2. in relation to breeding objectives, critique specific breeding strategies
  - i. relate strategies to crop type;
  - ii. compare and contrast type(s) of environment addressed;
  - iii. relate strategies to overall priority goal;
  - iv. discuss whether strategy might be applicable to meet several goals: eg production increase and biodiversity enhancement, other farmer-defined objectives.
  - v. discuss how different types of farmers (men/women, richer/poorer, etc.) are defining objectives and why.
3. review specific screening and testing methods which specifically helped to enhance user participation; similarly comment on those which intrinsically limit farmer participation (detailed descriptions would be useful); discuss if gender or other differentiation of farmers affects screening and testing methods.
4. Identify prerequisites for using any particular strategy, ie. critical success of failure factors.
5. compare and contrast how different users (particularly gender-differentiated users) were involved in the various participatory plant breeding programs, numbers of users involved, types of users. Did the inclusion of different users impact upon the design or the conduct of the program?

#### **B. *Institutional options and organization forms in participatory plant breeding***

1. analyze types of current institutional arrangements under which participatory plant breeding is being carried out (or newly-envisaged options). identify full range of types.
2. analyze current ways in which links between participatory plant breeding programs and farmers are resourced, including farmers' contribution (and, again, newly envisaged options). Discuss whether different types of farmers resource the program in different ways.

3. analyze how current institutional options and organization forms inherently encourage/limit participation a) in general and b) among specific user (particularly gender-differentiated user groups).
4. within current institutional arrangements and organizational forms, analyze efforts to increase coverage and potential for scaling up the participatory plant breeding program (including involving a wider range of user types).

*C. Farmer experimentation*

1. review and analyze how farmers' own experimentation fits into participatory programs to date. For each type of program, what have been the implications? how has farmer experimentation been defined?; how is it identified? Are there distinct differences between men's and women contribution to modes of experimentation?

*D. Seed System Links: to both the formal and informal seed systems*

1. describe how current participatory plant breeding programs have linked with formal and informal seed systems.  
have such links been adequate, if not why? Has gender played a role in facilitating/hindering seed system links?
2. describe strategies which could enhance links to formal and informal seed systems (or whichever is appropriate).

*E. Typology of Participatory Breeding Projects*

**A final aim of this consultancy should be to develop a typology which ties breeding strategy and organizational divisions to crop type, environment and priority goals. What general "types" of participatory programs are emerging? What seems to be working where? According to which end goals?**

According to the consultant(s) discretion, the typology can either be introduced at the beginning of the paper—and serve as the framework for discussion of the subsequent themes (for example, define the institutional context and overall objectives as the starting point, then look at breeding strategy and experimental methods, farmer involvement of users, farmer experimentation, seed system links, etc.) Alternatively, the typology can emerge at the end, as a result of study of the analysis and comparison of the many and varied case studies.

**IV. Sources for material**

1. The published material will offer some insights into how farmers have been involved in varietal development experiments. Note that not all authors will refer to farmer involvement as "participatory": this is a fairly recent term.
2. The grey literature will also need to be systematically consulted: annual reports; unpublished conference papers, internal project circular, etc. Grey literature should be collected, inventoried, and delivered to the SWP coordination for use by members.
3. As the focus here is on methods, (and particularly reflections on methods, not just descriptions), one of the greatest sources for insights will be through corresponding with those involved in innovative breeding projects. As much as possible, this should be done by email and fax (with the former particularly encouraged). No field visits can be financed under this consultancy.



4. The consultant(s)' search for Participatory Plant Breeding Projects should be inclusive (IARC, NARS, NGO, grassroots work---if done within formal breeding framework). Work of members of the SWP/Participatory Plant Breeding should especially be reviewed, although the search for innovative participatory plant breeding projects should go beyond the SWP.

## **V. Consultancy report**

### Timing

1. The first draft of this consultancy report should be delivered within three months of awarding the contract. Final draft should be delivered within six weeks of receiving formal comments from SWP reviewers.

### Assignment of Copyright

2. In consideration of the fee paid, the consultant(s) will assign to the Systemwide Program (with CIAT as convener) any copyright which she/he/they may have to the works (including documents or report/s) produced while executing the contract.

Furthermore, any documents or reports produced while executing this contract may not be reproduced or otherwise disseminated by the consultant(s) without the prior written consent of the Convener of the Systemwide Program on Participatory Research and Gender Analysis.

### Length

3. 75 pages (exclusive of references, appendices and collection of grey literature). Report should aim to be pithy, with presentation of guidelines, major lessons, and key insights in easily readable forms (highlight by use of boxes is recommended).

### Links with SWP

4. The consultant(s) should maintain strong link with the participatory plant breeding working group facilitator and interim drafts should be shared with the facilitator at regular intervals, to be defined with the consultant(s).

### Fee

5. \$US 6,000.

## **Systemwide Program on Participatory Research and Gender Analysis**

### **GENDER/USER ISSUES IN: Participatory Plant Breeding**

#### **Terms of Reference**

##### **I. Purpose**

The purpose of this review of methods/approaches and strategy for integrating gender and user concerns into the heart of participatory plant breeding is to guide the development of practical, field research programs. The review will also lay the groundwork for an examination of similarities and differences between attention to gender versus user groups differentiated by other variables. As such, the consultant should seek to highlight in as much detail as possible the rationale for using specific methods/strategies, the strengths and limitations of approaches used, and the consequences of choices made.

The overall aim of this consultancy is not just to review and analyze what has been done, but also to improve on current practice and future efforts. Where there are methodological gaps, these should be explicitly highlighted. Where other research or disciplinary programs might help better inform the participatory plant breeding, these, too, should be signalled.

In brief, we need of analysis of methods and approaches for gender/user differentiation and the inclusion of different user groups in participatory plant breeding in terms of:

- what has been done and with what implications (an analysis, rather than a simple inventory)
- general lessons learned
- gaps
- suggestions/insights for filling gaps

##### **II. Introductory note**

1. In doing the reviews and analyses, the consultant should seek to distinguish between participatory plant breeding projects in which the starting point was:

a) formal breeding (that is, in which farmers were asked to contribute to what was basically an IARC, NARS or NGO research program) and;

b) farmer breeding (that is, researchers/development workers were directly building on farmers' own varietal development and seed systems.

2. In doing the reviews and analysis, the consultant should also seek to distinguish between gender-sensitive methods and approaches and other user differentiating methods and approaches (if applicable)

a) Who was included and how was that determined—differentiating variables which might include gender, class, ethnicity, resource base, expertise, field conditions, etc. Care should be taken to distinguish when gender is a cross-cutting variable.

b) How gender and other differentiated user groups are included in participatory plant breeding. Attention should be paid to specific strategies and approaches which ensure/ facilitate inclusion (eg timing, location, sex of intermediary, separate interviews, language). The intended rationale for including gender and other differentiated users should be explained.

c) How the type of participant involved (gender and user-differentiated) and way in which participant was involved directly affected the program outcome (eg in production gains, biodiversity enhancement, empowerment goals, equity results).

3) In reviewing methods and approaches, the consultant should specifically address how methods/results of gender differentiation relate to methods/results of other user differentiation. This has two aspects:

a) Exploring if/how understanding and addressing the needs of women may have benefits or provide insights into working with other groups.

b) Exploring if/how the methods of gender analysis provide insights/are adequate for understanding other kinds of user differentiation.

### **III. Overview of subject to be covered**

1. Analysis of practices for: identifying gender/user needs/preferences for varieties
2. Analysis of practices for directly involving users in the R&D process of plant breeding--with attention on gender-sensitive approaches. Are there common denominators that make these approaches succeed/fail? Are there any striking methodological gaps?  
  
(each should be considered separately (diagnosis, crossing, screening and testing phases, evaluation, diffusion of breeding insights, seed dissemination, seed multiplication phase)
3. Analysis of how gender/user differentiation in a) needs/preference work and b) direct involvement in R &D relates to actual impact achieved. This should include analysis of both gains (positive impact) and losses (eg not reaching expected objectives).
4. Analysis of how the methods and approaches used for gender/user involvement have (or have not) helped to scale up a) the process of participation and b) the products identified through participation (including farmers' objectives).
5. Attention to all the above (1 thru 4) but with the lens of INDIRECT stakeholders/users whose needs/preferences and involvement may be important in participatory plant breeding projects. (Consultant would have to identify indirect stakeholders.)
6. Analysis of sociocultural contexts in which such research was carried out to determine whether there were facilitating or constraining conditions to the inclusion of different groups.

#### **IV. Further specifics on subjects (notes to section III)**

1. **Diagnosis In PPB**
  - a. **special attention to diagnostic methods to assess stakeholder preferences**  
**methods/techniques (to be used for which sub-groups, which contexts, at what scale, with which strengths/limitations)**
2. **Gender/user direct involvement in r&d process**  
**analysis of methods/practices/approaches for involving gender-differentiated (and other user categories) in different stages of research.**
  - a. **who was involved at which stage and why;**
  - b. **how were those involved identified and chosen;**
  - c. **were there identifiable constraints to the inclusion of particular groups;**
  - d. **some explicit attention to possible trade-offs between selection according to gender/user representation and varietal/seed expertise.**
  - e. **some explicit analysis of the types of gender/user groups actually involved the participatory breeding when formal or farmer-led. (explicitly describe context of involvement: range of users and stakeholders, crop type, sociocultural situation).**
3. **Gender analysis and gender-sensitive participatory research**  
**distinguish between**
  - a. **gender analysis and other methods to differentiate gender and other user groups. This would include methods to distinguish among groups and within groups.**
  - b. **methods, strategies, approaches to invite/ensure inclusion of those groups in identifying preferences and in actual breeding.**
4. **Gender/user differentiation and impacts achieved in ppb**
  - a. **compilation of any evidence which shows whether gender/user differentiation made a difference in impacts achieved. (Be sure to define impacts broadly: production impacts, cost-benefits, empowerment and equity results, range and types of users reached).**
  - b. **highlighting of methods by which differentiated impact was assessed. explain if use of specific methods affected the assessment results.**
  - c. **advice on initial research design, to ensure that gender/user differentiated impacts can be assessed.**

5. **Scaling up**
  - a. indication of the number of farmers/users reached directly and indirectly because of methods/approaches used.
  - b. indication of possibilities for scaling up the approach and its products because of methods/approaches used in gender/user differentiation.

6. **Indirect users**

who were they

how important were they for the PPB work (consequences of not involving them);

how to identify their needs and preferences;

methods used for involving indirect stakeholder/users---and at which stages of the breeding/seed supply R&D process;

**V. Sources for material**

1. The published material will offer some insights into how farmers have been involved in varietal development experiments. Note that not all authors will refer to farmer involvement as "participatory": this is a fairly recent term.
2. The grey literature will also need to be systematically consulted: annual reports; unpublished conference papers, internal project circular, etc. Grey literature should be collected, inventoried, and delivered to the SWP coordination for use by members.
3. As the focus here is on methods, (and particularly reflections on methods, not just descriptions), one of the greatest sources for insights will be through corresponding with those involved in innovative breeding projects. As much as possible, this should be done by email and fax (with the former particularly encouraged). No field visits can be financed under this consultancy.
4. The consultant search for gender/user insights in the breeding process should be inclusive (IARC, NARS, NGO, grassroots work---if done within formal breeding framework). Work of members of the SWP/Gender Working Group and Participatory Plant Breeding should especially be reviewed, although the search for innovative work should go beyond the SWP.

**VI. Consultancy report**

Timing

1. The first draft of this consultancy report should be delivered within three months of awarding the contract. Final draft should be delivered within six weeks of receiving formal comments from SWP reviewers.

Assignment of Copyright

2. In consideration of the fee paid, the consultant(s) will assign to the Systemwide Program any copyright which she/he/they may have to the works (including documents or report/s) produced while executing the contract.

Furthermore, any documents or reports produced while executing this contract may not be reproduced or otherwise disseminated by the consultant(s) without the prior written consent of the Convener of the Systemwide Program on Participatory Research and Gender Analysis.

Length

3. 75 pages (exclusive of references, appendices and collection of grey literature). Report should aim to be pithy, with presentation of guidelines, major lessons, and key insights in easily readable forms (highlight by use of boxes is recommended).

Links with SWP

4. The consultant(s) should maintain strong link with both the gender working group and participatory plant breeding working group facilitators. Interim drafts should be shared with both facilitators at regular intervals, to be defined with the consultant.

Fee

5. \$ US 6,000.00

## **Systemwide Program on Participatory Research and Gender Analysis**

### **Plant Breeding Group Strategy: Guidelines for Funding New Work**

#### **1. Background**

The following strategy guidelines have been developed by the Plant Breeding Group (PBG) of the SWP PRGA to stimulate advances in research on participatory approaches to plant breeding. The guidelines have been developed through dynamic exchange in PBG email networks and at two separate meetings: the Systemwide Program inauguration in Cali, Colombia in September 1996 and in a small expert consultation in the Hague, Netherlands in June 1997.

Under the rubric of 'Participatory Plant Breeding'(PPB), the PBG defines two broad approaches: when farmers join in breeding experiments which have been initiated by formal breeding programs ('Formal-led PPB'); and when scientists seek to support farmers own systems of breeding, varietal selection and seed maintenance ('Farmer-led PPB'). Farmers' own breeding in which there is no intervention by outsiders is a separate category from PPB.

Intensive exchanges among PBG members have revealed how much the two approaches represent a continuum, with users (eg. farmers processors, consumers), development workers and scientists actively involved in both.

For instance, in formal-led PPB, farmers are helping to set strategic goals and are working with landrace as well as exotic materials; in farmer-led PPB, new germplasm and new selection methods are being introduced to farmers by breeders. The seminal differences hinge on who ultimately controls the breeding process and seed systems (i.e. whether researchers or farmers are the driving force) and the scale on which the work is undertaken. So far, farmer-led PPB tends to be clustered in a few communities while formal-led PPB aims for broader geographical coverage.

The plant breeding group chose to analyze these two approaches as distinct in order to compare and contrast the methods, institutional arrangements, and outcomes of each.

#### **2. Objectives**

The objectives of these guidelines for funding for the small grant program which will be managed by the systemwide program under the direction of the PBG are:

- a) to catalyze new studies which address knowledge gaps in participatory plant breeding;
- b) to stimulate ongoing studies to add new dimensions;
- c) to enable ongoing studies to analyze and write-up existing work which address gaps in current knowledge about participatory plant breeding. In this context, to encourage fuller dissemination of results.

### 3. Framework for planning comparative analysis

Based on a preliminary inventory of work-in-progress and of published studies, two sets of criteria have been defined by the Plant Breeding Group to identify knowledge gaps in current work on participatory plant breeding, and to guide planning of new work.

#### A. Environment of PPB

The first set of criteria refers to the environment of PPB, that is, the broad context in which it takes place, and specifically the types of agroecological and market environments in which PPB has been developed.

Agroecological environments range from marginal, risk-prone environments to the type of more favored and uniform environment (in which farming is usually high input).

The economic environment in which PPB is being developed can be differentiated by the degree of market integration of farm systems. Market orientation ranges from primarily subsistence-oriented systems, in which farmers' plant varietal choices are governed by local preferences, to more commercial systems in which varietal preferences are largely driven by urban consumer and/or commercial processor needs. The latter tends to demand a high degree of homogeneity in product and often favor a narrow range of grain, taste, and cooking types.

Table 1 shows a typology of PPB environments which combine agroecological and market parameters. Existing cases of PPB can be mapped across the six types of environment defined in the typology. The largest number of cases is clustered in the agro-ecologically marginal and subsistence-oriented environments (eg work in Eastern India, Syria, and high-altitude Nepal). However, a fair proportion of PPB work is now taking place in the more favored, and more commercial types of environment (eg irrigated areas of the Philippines), principally for two reasons. First, some PPB programs aim to expand intra-crop varietal diversity in what have become relatively uniform farming areas; second, in some cases, NGOs are helping farmer groups organize PPB programs in more favored environments primarily to gain more control over the breeding process, ie. the case of rice in several Asian countries.

The Plant Breeding Group has also identified two other situations in the more-favored environments where PPB might have a high pay-off, and where no cases have been identified: (1) in situations where existing seed systems are inadequate; (2) when user preferences are not fully being met by conventional breeding, as in the case when consumers are seeking niche or "gourmet" varieties.



**Table 1: Framework for comparative analysis. Distribution of PPB cases<sup>1</sup> across different types of environment**

AGROECOLOGY<sup>2</sup>

Market Integration	Marginal	Favored	
. Commercial	. Corpoica/CIAT Colombia	. CIAT/Colombia (beans)	. SE Brazil/EPARGRE
		. Sokoine/CRSP Tanzania	. SEARICE/Philippines
		. Tanzania NARS/CIAT	. PNAP/CIP Rwanda
	. CIMMYT Mexico	. PNL.CIAT.COPIBU	. yi Ching/China
	. IRRI/India partners	. BBA/India	
. Subsistence	. EMPMF NE Brazil	. ISAR/CIAT/COPIBU Rwanda	
	. NARC/ODA		
	. KRIBCHO/ODA India		
	. SAVE/Sierre Leone		
	. REST/Ethiopia		
	. ICARDA/Syria		
	. SURE/ICRISAT/India		
	. Narendra Dev/India		
. IER/KIT Mali			
. ICRISAT/Nambia			
. ICRISAT/Niger			

<sup>1</sup> A sample of cases is mapped: full inventories available January 1998

<sup>2</sup> These categories represent a continuum.

**B. Crop development parameters of PPB**

The second set of criteria used for analysing knowledge gaps in current work, is drawn from the crop development parameters of PPB. As shown in Table 2, PPB work can be classified into three groups by the way the crop is reproduced because this fundamentally determines certain features of breeding methodology: vegetatively propagated, open and self-pollinated.

Another important criterion for classifying PPB is the stage in the breeding process at which farmer participation is initiated. Until now PPB has been classified into two stages: that introducing farmer participation at and early stage using variable populations and that using stabilized or fixed lines. Two other stages are suggested by the PBG to help differentiate types of studies:

1. Farmers may be involved early in planning helping the overall breeding objectives and strategy --- but not necessarily directly involved in subsequent stages
2. Farmers may also take the principal lead in multiplying and distributing the products of PPB that is, getting seed and plantings throughout communities and beyond. The PBG regards seed systems issues as integral, not optional, in PPB programs.

Both informal, farmer seed systems as well as the formal, public or private sector suppliers may be involved.

Table 2 shows that formal PPB is working in various crops vegetatively-propagated, open- and self-pollinated). About an even number of cases have worked with either variable or stabilized materials. No formal PBB has yet been identified which involves farmers in planning the objectives and strategy. Further, very few formal PPB efforts have linked the development of PPB materials with subsequent seed diffusion. A handful have successfully introduced PPB materials into the formal sector (in India and Nepal)--but without resolution of possible property right discrepancies. Some programs have specifically worked with groups of farmers who can take over the seed multiplication for their communities (Rwanda/beans, Colombia/beans; Colombia/cassava, Colombia/maize).

The extent of farmers' own plant breeding is not known although anecdotal evidence suggests that it may be more extensive than is commonly appreciated, a deficiency which is being addressed in new work commissioned by the PBG. However, it is not yet possible to show accurately how farmers own plant breeding is distributed in relation to the different types of environment or crops shown in Table 2.

Examples of farmer-led PPB in which scientists and development personnel actively support farmers' own breeding and seed production, are few in number and not yet well documented. The Hague consultation suggested that such farmer-led PPB programs could be particularly effective in agricultural systems undergoing significant change, whether as a result of war, natural disaster, ecological change, or radical changes in policies (for instance in respect to markets or use of inputs). Such dramatic shifts may require re-establishment of seed supply systems, recovery of adapted materials or even adaptation of very new material to altered circumstances.

Some have argued that farmer breeding is still a major evolutionary force in agriculture, and that 'outside' support to farmer breeding will be the only way to encourage significant improvements in the many minor crops untouched by conventional breeding.

**Table 2: Framework for comparative analysis. Distribution of PPB cases by crop development parameters.**

Stage of Research	PROPAGATION MODE		
	Vegetative	Open-Pollinated	Self-pollinated
Setting Strategic goals			
Working with variable materials	N/A	. CIMMYT/Mexico/maize . SURE/ICRISAT/pearl millet . ICRISAT/Namibia, pearl millet . ICRISAT/Niger, pearl millet . REST/Ethiopia, cereals . yi Ching/China, maize	. IRRJ/India Rice . ICARDA/Syria Barley . Tanz. NARS/CIAT beans . NARC/ODA Nepal, rice . CIAT/Colombia, beans . SEARICE/Philippines, rice . Sokoine/CRSP Tanzania, beans
Working with material	stabilised	. CIAT/Corpoica Colombia/cassava . SE Brazil EPARGRE/cassava . NE Brazil EMPMF/cassava . UPWARD/sweet potato multiple locations . PNAP/CIP Rwanda potatoes	N/A (HYBRIDS) . IRRJ/India, rice . ICARDA/Syria, barley . KRIBCHO/ODA India, rice . PNL/CIAT Zaire, beans . ISAR/CIAT/COOIBU Rwanda, beans . BBA/India, Beans, Rice . SAVE, Sierre Leone, rice . Narendra Dev/India, rice
Working with seed systems		. Corpoica/CIAT cassava	CORFOCIAL/MAIZE . CIAT/Colombia, beans . ISAR/CIAT/COOIBU Rwanda, beans

#### 4. knowledge gaps to be addressed

1. Much though by no means all all formal-led PPB work is conducted in CGIAR international research centers. Studies are needed of ongoing PPB or new PPB initiatives in national research institutes to assess alternative PPB strategies, their impact, and costs in national institutional contexts.
2. Experience of providing active support in farmer-led PPB needs to be expanded and documented. This needs to include study of farmers own breeding and how support is requested and provided, with especial focus on enhancing farmers breeding skills and access to germplasm, the division of

labor between farmers and scientists, and the institutional arrangements needed to support this. Given that the field here is relatively unexplored, it may be important to initiate new work where farmer-led PPB is hypothesized to have most impact: with minor crops and/or in very heterogeneous landscapes characterized by multiple micro-environments.

3. The cluster of ongoing formal-led and farmer-led PPB cases in the marginal, subsistence-oriented type of environment should examine what results they are having in addition to yield or quality (see section 5.2G) such as the effects of PPB on varietal diversity; on seed availability to resource-poor farmers; and on how seed is distributed, whether through traditional or new seed systems.
4. PPB has yet to be tested in agroecologically-favored environments where potential beneficiaries include the rural and/or urban poor.
5. Studies are needed which explore whether formal or farmer-led PPB can link farmers with "prebreeding" and applications of biotechnology to genetic improvement.
6. There are still relatively few studies which introduce farmer participation early into the breeding process (using segregating lines), and in particular the involvement of farmers in planning the objectives and strategy for a formal-led PPB effort has yet to be assessed.

## **5. Specific topics for funding by small grants**

### **5.1 Outputs defined in the pbg workplan (September 1996)**

These outputs are given here as a point of departure for the specific topics defined below.

Four basic outputs were defined by the Plant Breeding Group at the September 1996 planning meeting in Cali, Colombia:

Effective participatory methods in plant breeding assessed and developed with focus on:

- farmer's breeding
- plant selection (segregating lines)
- variety selection (fixed lines)

Beneficiary groups in participatory breeding through methods development for involving direct & indirect stakeholders accurately involved and targeted

C. Effective organization forms for operationalizing participatory breeding in the research process identified and developed.

D. User access to products of participatory breeding assured through identification of effective organizational forms and links to supporting seed services

### **5.2 Topics identified in the pbg expert consultation (JUNE 1997)**

#### ***a. Breeding methods***

- What are the most promising breeding methods for working with farmers in PPB: Are new methods needed? can existing methods be adequately modified? What methods and skills are useful to farmers in formal-led PPB vs farmer-led PPB? What are useful methods for doing PPB

with segregating vs stable populations; for vegetatively propagated vs open pollinated crops; and for involving farmers at early stages in a formal-led breeding effort.

- Can PPB approaches link usefully with prebreeding using biotechnology, and if so, how?
- Is PPB with production objectives different from PPB with conservation objectives?
- What are the the breeding/selection methods farmers already use, and what are their effects on local production, local genetic diversity, and the ability of local farm systems to respond to change? What input do farmers want from formal breeding programs? What opportunities for strengthening farmer-led PPB do breeders derive from this analysis? What is the effect of such input from breeders on farmers' own breeding?
- Is decentralised breeding a substitute for PPB?
- Can feedback from farmers to formal breeding via PPB be systematised at a scale that is useful to eg. a national program? Is this a meaningful objective or must PPB be decentralised to small scale local applications?

b. *Selecting and differentiating participants in PPB: reaching different beneficiary groups.*

- what kinds of farmers should PPB aim to involve?  
what are the advantages and disadvantages of involving for example: farmer experts; volunteers; a random sample or stratified random sample of farmers; representatives of different levels of resource endowment; women and men in different groups.  
What is the effect of the type of farmer involved in PPB on the benefits obtained from the PPB by different groups?
- what are the advantages and disadvantages of different methods for identifying user-differentiated preferences ?
- what are the advantages and disadvantages of different methods for assessing the impact of PPB for users differentiated by gender or resource-endowment.
- is formal-led PPB, farmer-led PPB or farmers' own breeding able to provide new germplasm to women and the poor more effectively than conventional breeding?

c. *Institutional innovations: new ways of organising to do PPB*

- Are PPB products (varieties, seed) being disseminated from one location to other similar environmental niches or to user groups with similar preferences? On what scale is this occurring: among villages, regions, or countries? If this is occurring, what different institutional arrangements are being used to accomplish this?

Is carrying out PPB processes ( eg getting farmers' feedback to scientists; conducting farmer evaluations; building farmers' skills; providing farmer breeders with new germplasm) necessarily a "village-scale" activity? What organisational strategies are being used to scale-up PPB processes to achieve broader coverage?

#### *d. Seed systems*

- can informal seed systems handle large or frequent infusions of new material (whether landrace or elite) coming from PPB efforts?
- what are the roles of private sector, public sector, and "intermediary" seed multipliers and diffusers in PPB?
- what strategies are feasible for diffusion of PPB products in open-pollinated crops, and how do different strategies affect yield, genetic diversity and stability for example?

#### *e. Costs, benefits and evaluating impact.*

- what kinds of resources are required for PPB and what are the costs of different PPB approaches? Can a comparative analysis be made of costs of existing efforts, and is this information adequate to provide guidelines to decision-makers? What methods can be used rapidly and easily to conduct an ex ante assessment of costs to aid research managers and other decision-makers in selecting among approaches? How does the scale at which PPB is conducted affect costs?
- what benefits of PPB can realistically be measured, either quantitatively or qualitatively? What are the different methods that can be used for this purpose? What is the role of participatory evaluation vs other methods for assessing benefits?
- what benefits of PPB can be given an economic value: can cost-benefit ratios be estimated?
- what milestones should be established in order to monitor the progress and effectiveness of PPB in reaching its objectives? What are the best methods for doing this monitoring/ What is an appropriate mix of self-evaluation or participatory evaluation and external evaluation for monitoring?
- The PBG recommends that some aspect of the impact of PPB should be considered in each proposal which receives support from the PBG. The following types of impact may be considered:
  - Crop production or income changes (food, fodder etc)
  - quality improvements (post harvesting usage)
  - crop production stability, food availability over seasons
  - farm income stability over seasons
  - returns to factors of production (land, labor, capital, seed, water etc)
  - labor requirement within and across seasons
  - Biodiversity enhancement (genetic diversity, species diversity)
  - use of environmental conservation practices
  - Type of user benefited particularly the poor and women (coverage); proportions of different users benefited (equity); rates at which different users benefit
  - Overview of the total benefits to women of different approaches to PPB
  - Effects on formal breeding process: feedback from farmers provided to scientists, at what stages in the formal breeding process, with what effect on breeding objectives or strategy;
  - Effects on farmers' own breeding processes: linkages sustained to formal breeding, inputs obtained from scientists, changes in farmers' skills, objectives, strategy
  - Effects on the division of labor among different actors: gender-differentiated farmers, scientists, extension agents, private sector.
  - Costs of PPB and changes in cost structure of formal breeding incorporating PPB

- Capacity building and knowledge generation related to plant breeding for both farming communities and the formal research and development (R &D) sectors
- Capacity building and knowledge generation related to empowerment particularly of farming communities
- Institutional and organizational changes
- policy modifications to eg seed policy, breeding regulations. to accommodate expansion and institutionalization of PPB.

Note: Ongoing work is documenting PPB's effects on production gains, postharvest quality and feedback to formal research.

The costs of PPB and its effects on biodiversity have received little attention women, as varietal selection experts, have been the main participants in some PPB, but the benefits to women vs men have not been examined

Not all outcomes of PPB are expected to be simultaneously realizable. To provide guidelines for choosing among different PPB approaches, trade-offs need to be identified: eg, between equitably reaching the full range of users, or targeting special groups (women, the poor) through PPB, or achieving extensive geographical or numerical coverage, or keeping the costs of the program within a specified limit.

#### *f. Training materials*

- development of training materials on PPB.

Note: These include materials useful either to formal- or farmer-PPB, or both. Two main audiences have been identified as priority client groups for these materials: teachers and trainers of formal breeding; and those providing support farmers' own breeding.

### **6. Recommended procedures for soliciting and approving proposals**

6.1 The following procedures for soliciting and approving proposals for the small grant program of the PBG are recommended by the PBG:

- there will be one annual open competition which is advertised through: the SWP e-mail list-serve, breeding, farming system, gender analysis, and donor networks;
- small grants will aim to co-finance up to 50% of the total costs of the proposed research, by adding to contributions by grant recipients in cash or kind;
- small grants may also be awarded to provide matching amounts of seed money towards a larger project for which the SWP will provide support, donor contacts etc, if required.
- an independent Technical Advisory Panel (of about 3 people) will be proposed by the PBG and approved by the Planning Group
- proposals will be solicited using a standard format to make prescreening straightforward so as to ensure that minimum requirements (see Table 3) have been met

- the Technical advisory panel will rank proposals systematically, using a common set of criteria drawn from the above guidelines and the general criteria for the SWP (see Table 3 below)
- the Technical Panel make recommendations to the Planning Group of the SWP PRGA; the Planning Group of the SWP PRGA will approve proposals and make final allocations (once a year)
- Program coordination will handle advertising, receipt and prescreening of proposals, release of funds, monitoring of reporting
- grant recipients will make a yearly report to the PBG facilitator, for synthesis into the Program's annual report. Release of second year funds will be contingent on satisfactory reporting.

The form for proposal submission will be available for comment by October 1, 1997.

The Program currently has US\$275,000 budgeted for PPB grants. Small grants will be awarded for a maximum of \$US 35,000./yr for a maximum of two years, with the possibility of renewal contingent on the level of Program funding.

#### 6.2 SWP task force criteria Sept. 1996

The general criteria for approving projects under the SWP PRGA defined by a Task Force formed at the September 1996 planning meeting and composed from a range of SWP partners, are shown in Table 3.



**Table 3: Proposed criteria for inclusion of projects in the systemwide program.\***

<p>Project proposals should specify:</p> <p>Participatory approach: plan for how the project will work with farmers' organizations or groups of farmers.</p> <p>2. Interinstitutional linkages: involvement of at least two institutions.</p> <p>3. Clear agreement from all partners on the resources they will allocate to the project.</p> <p>Explicit consideration of gender representation (of partners) and gender Issues in the proposed research.</p> <p>5. Plan to involve men and women in implementing the research.</p> <p>6. Strategy for getting access to multidisciplinary teams which take into account social science and natural science skills.</p> <p>7. Plan to build on farmers' skills.</p> <p>8. Clearly-defined time frame.</p> <p>9. Monitoring and evaluation plan.</p> <p>10. Clear definition of the roles of partners in research and capacity building.</p> <p>11. Statement of what project will offer to the systemwide program.</p> <p>12. Statement of what project expects from the systemwide program.</p> <p>13. Statement of resources available and resources required.</p> <p>14. Plan for sustaining project activities at community level after phasing out of project</p>
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\* Task Force on "Partnership", Systemwide Initiative Planning Meeting  
9/14/96

## Research Design Issues in Participatory Plant Breeding: an Expert Consultation

The Hague, June 25-27, 1997

The CGIAR Systemwide Program on Participatory Research and Gender Analysis (SWP PR/GA) recently held an expert consultation to examine key research design issues in Participatory Plant Breeding (PPB). The aim was to identify the range of outcomes which can emerge from PPB and to devise a research framework and strategy to compare and contrast the results of PPB work with conventional breeding as well as to scrutinize the outcomes of a variety of PPB approaches themselves. The reflections of this expert consultation are being elaborated into a booklet: 'Research Guidelines for Designing Participatory Breeding Programs'.

Under the rubric of 'Participatory Plant Breeding', the consultation considered two broad PPB approaches: when farmers join in breeding experiments which have been initiated by formal breeding programs ('Formal-led PPB'); and when scientists seek to support farmers own systems of breeding, varietal selection and seed maintenance ('Farmer-led PPB'). Intensive discussions revealed how much the two sets of approaches represent a continuum, with users (eg. farmers processors, consumers), development workers and scientists being actively involved in both. For instance, within formal-led, farmers might help set strategic goals and work with landrace as well as exotic materials; and farmer-led PPB can involve the introduction of new germplasm or new selection methods. The seminal differences hinge on who ultimately controls the breeding and seed systems (farmers driving the latter) and the scale on which the work is undertaken (Farmer-led PPB tends to be clustered in a few communities while the formal experiments eventually aim for broader impact).

### Possible outcomes of ppb

A range of outcomes can emerge from PPB programs with the consultation group highlighting: production increases; biodiversity enhancement; better targeting of user needs (particularly the poor and women); capacity building and knowledge generation for both farming communities and the formal research and development (R &D) sectors; empowerment, particularly of farming communities; cost-efficiencies; institutional and organizational innovation; breeding and seed policy modifications.

Analysis of the PPB work to-date showed that very few PPB programs (none?) have analysed their effects across the full range of outcomes. Work has most often examined PPB's results on production gains and knowledge generation. The costs of PPB and its effects on biodiversity have been rarely explored. Further, while women, as the selection experts, have been central to several PPB programs, the benefits of the approach have not been examined across user groups.

In the process of reviewing actual field programs, the consultation group hypothesized that all outcomes are not simultaneously realizable. Ongoing and future PPB work needs to rigorously examine the different PPB approaches in terms of their trade-offs: eg, between diversity enhancement and production gains; between reaching full range of users (eg women, poor) and costs of the program (including the costs of not reaching out.)

### Contexts for ppb

An initial framework for contextualizing PPB programs was devised along two axes: first, the type of agroecological environment, ranging from marginal (riskprone and heterogeneous) to more favored and uniform); and second, the degree of market commitment, ranging from the isolated, primarily subsistence-

oriented systems to those in which crop production is largely driven by urban consumer and/or commercial processor needs.

In terms of the formal-led PPB, existing cases could be mapped along the full length of both axes and also at the majority of their intersects. The largest number of cases were clustered within the marginal, basically subsistence-oriented production environments (eg, in parts of Nepal, India, Syria, Zimbabwe). However, surprisingly, an increasing amount of PPB work is now unfolding in the more favored, market-driven contexts. This happens for a variety of reasons: initiatives seek to expand intra-crop varietal diversity in what have become relatively uniform farming areas; existing seed systems may be inadequate; and user preferences are not fully being met by conventional breeding and/or users are seeking more organic products. In some cases, NGOs are helping farmer groups organize PPB program in more favored environments primarily to gain more control over the breeding process, ie. the case of rice in several countries Asia.

Formal-led PPB programs were found to be ongoing across crop types (in vegetatively-propagated, open- and self-pollinated). The majority of these worked with stabilized lines but about a third of the programs are experimenting with variable materials.

Farmer-led PPB programs, that is, scientists and development personnel working to support actively support farmers' own breeding and seed systems processes, seemed fewer in number and less well documented. The consultation group suggested that such farmer-led PPB programs would be particularly effective in agricultural systems undergoing significant change, whether as a result of war, natural disaster, ecological change, or radical changes in policies (for instance in respect to markets or use of inputs). Such dramatic shifts may require re-establishment of seed supply systems, recovery of adapted materials or even adaptation of very new material to altered circumstances. In all cases, local needs and experimental capacity will have to steer the R & agendas.

The group thought it surprising that more active 'interventionist' work has not been done in this area of farmer-led PPB (although it noted that studies of farmers' own breeding methods and seed systems are on the rise). Some argued that farmer breeding itself is still the major evolutionary force in agriculture, and that additional ('outside') support to farmer breeding will be the only way to encourage significant improvements in two broad realms: in the many minor or alternative crops untouched by the conventional breeding system ; and in the many micro-environments whereby it is not cost-effective for conventional breeding to devote resources.

(Note that comprehensive inventories of both past and ongoing formal- and farmer-led PPB programs will be available through the SWP PR/GA in early 1998.)

### **Design issues in ppb**

The consultation considered step by step the research issues at the all various phases of PPB work: from the initial diagnosis of whether PPB is needed at all and what users might want through the stages of site selection, determining who participates, the research roles of all, what kinds of breeding materials are involved, how the work could be evaluated and considerations in subsequent seed multiplication and dissemination.

To consider design issues, the consultation divided into two working groups: those focusing on formal and farmer-led approaches. The topic emphasis varied by group. For instance, those working on formal-led approaches explored some of the exigencies of conducting research on PPB as well as development efforts. Formal-led programs need to develop a framework which can distinguish between the effects of decentralization and participation itself. Further 'research controls' might need to be built in so as to aid

direct comparison with conventional breeding systems. The group strongly emphasized that the cost of these 'research-needed controls' should be borne by the formal research system, not by collaborating farming communities.

The Farmer-led PPB group discussed at length how to encourage a truly community led process--and the possible research implications of this. PPB programs should not be undertaken at all unless the community has prioritized breeding support during a general needs assessment process. Further, scaling up of their PPB work (whether of methods or of germplasm products) should be decided (yes/no and how) only by the community.

However, while there were differences in emphasis, many of the research design issues cross-cut both the formal-led and farmer-led design group discussions. A few of these are explored below so as to give an idea of the flavor of discussion.

Diagnosis: what users want: Accurate diagnosis of what users want and need demands a range of techniques: eg preliminary evaluation, with farmers, of 'weaknesses' in material they are already sowing; exploratory trials using both local and exotic material; as well as the more common survey, focus group or community meeting assessments. The full range of potential user groups should be involved at the diagnostic stage (different groups of farmers, intermediaries processors and consumers), with separate meetings sometimes being required to learn concerns of the more disadvantaged groups. Increasingly, PPB diagnoses are showing that farmers are not looking for one or two ideotypes, but rather a range of materials which, together, give them the traits they desire. Basic to any diagnosis is that researchers understand farmers' own concept of 'variety' as well as understand the implications of local selection terminology. Working with farmers means developing a common conceptual vocabulary: western technical jargon has to be avoided.

Who participates: Determination of who actually participates in the PPB process has been given relatively scant attention to-date and yet the 'who' highly shapes the success of the program. Certainly, in terms of the germplasm issues in screening, the trade-offs involve working with 'experts' (those renowned for refined understanding of varietal traits and targeting varieties) and a representative sample of end-users (ie 'experts' may be a biased group). In a farmer-led program, the community itself decides who is directly involved in PPB work, but partners might want to be aware of possible biases towards less visible groups, eg. women. Other considerations should also be used to try to shape 'who participates', particularly if the breeding is to be linked to seed multiplication (eg may need seed multipliers or key diffuser selecting) or if a goal of the program is to evolve the entire process to communities relatively quickly (in which case elder, officials, or community leaders might best be involved).

What might be on offer: Generally three types of material can be screened/developed with farmers in PPB programs: local (segregating, stabilized or lines); exotic stabilized or lines) and introgressed genes (the latter being for the formal-led work) [JAA: IS THIS TRUE???]. The choice depends on the precise set of objectives desired by those involved (eg: biodiversity enhancement, production gains, meeting range of user needs). The formal-led group suggested a strategy which tests stabilized lines first, and moves to variable materials only if objectives cannot be reached. Stabilized lines involves an easier learning process, costs less, and gives farmers access to finished material sooner. A number of factors should influence the decision of how many materials should be on offer in PPB programs: whether screening will be on individual farms or centralized in, say, community plot (i.e. resources available); e.g. the intensity of evaluation desired for each individual entry; and whether farmers/users have previously been exposed to diverse germplasm. As a general rule, a PPB program should aim to expose for evaluation a 'greater' amount of potentially useful varietal diversity. It is important to note that programs on PPB to-date have focused on germplasm creation, screening or sharing in various forms. While increased knowledge of breeding/selection methods themselves has often been a by-product (honing the skills/methods of both formal and farmer breeders),

attention to methods exclusively, and a focus on skill building has not been given priority. Farmer-led PPB might specifically want to focus on skill development: strengthening farmers' knowledge of, for example, crop reproduction, heritability of traits, and mode of disease spread.

Seed System Issues: Notably, the consultation group recommended that seed system concerns be built into all PPB work and that the diagnosis of seed needs arising be very targeted. In some cases, the concern may be to guaranteed quality at the farm-level (vegetative crops) and in others to produce in quantity or to hasten normal diffusion rates. As who diffuses the material affects the number of varieties from PPB moved (biodiversity issues) but also who receives the benefits of PPB work (equity concerns), a stakeholder analysis of the seed system is crucial. In general, the earlier that farmers are involved in the formal breeding process (i.e. ranging from the generation of genetic diversity to on-farm testing of finished materials) the higher the likelihood PPB materials will have to be multiplied totally or in partnership with informal seed channels. Through early involvement, a greater number of user-acceptable material may be produced; they may be too heterogeneous to meet DUS criteria; or the desired varieties may be too location specific to be of interest to formal seed sector multipliers. Seed system issues may also prove to be a bottleneck in farmer-led program: while local systems may be generally efficient, it is not certain they can handle infusions of large numbers of new materials.

### **Concluding comments**

The consultation group emphasized that PPB need not compete with programs of conventional breeding, but rather should widen the basket of choices in breeding techniques and approaches. PPB in its different forms seeks to unite farmer breeding systems with the strength of its formal counterparts---and to do so equitably. Property rights issues, that is shared credit, needs to be addressed within all types of PPB programs: minimally, PPB should not be initiated unless farmers are guaranteed full access to the products of the joint farmer/formal breeder research endeavors.

The full draft set of "Research Guidelines for Designing Participatory Breeding Programs" will be available by October 15th. This draft will be circulated among a wide range of PPB research and development practitioners so as to get feedback on its utility and possibly enlarge its content. By publishing a set of extended guidelines, the SWP PR/GA also hopes to encourage the development of a comparative body of PPB work (eg. monitoring some of the same key variables across sites) in order to draw insights into the relative strengths of different approaches; that what PPB strategies prove more effective for meeting which outcomes, for which types of farmers, in what environments and for which crops.

For more information, please contact the SWP Plant Breeding Group Facilitator at [L.Sperling@cgnet.com](mailto:L.Sperling@cgnet.com).

## **B. <sup>2</sup>CASSAVA PPB**

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This research is carried out entirely within the workplan of the CIAT cassava project (IP #3)

### **1. BRAZIL**

#### **Uso de la Metodología en otros Proyectos y Programas**

##### **(1) *Proyectos financiados por IFAD***

El proyecto IPRA ha venido desarrollando actividades de investigación participativa (básicamente de diagnóstico y evaluación de tecnología) en Brasil, en el desarrollo de germoplasma de yuca, dentro de los Programa de Mejoramiento de Yuca del CIAT, del CNPMF de EMBRAPA y de EPAGRI, en

proyectos financiados por IFAD. Esta metodología, utiliza elementos del método CIAL y es conocida como Investigación Participativa en Mejoramiento en Yuca-IPMY.

La inclusión de la investigación participativa en la selección de nuevas variedades de yuca por agricultores en el caso de Brasil, fue propuesta por el proyecto IFAD, basándose fundamentalmente en una estrategia de entrenamiento.

- **Estado de Santa Catarina**

En este Estado, el proyecto “Desarrollo de Germoplasma de yuca para Condiciones de Subtrópico”, se llevó a cabo un entrenamiento en EPAGRI, Estación Experimental de Urusanga, (1994 / 1995). Fueron capacitados 15 extensionistas y 45 productores. Se obtuvo un libro de campo que permite la toma de criterios de selección y datos agronómicos que interpretan de manera técnica la información subjetiva de los productores. Además, se elaboró un vídeo didáctico, para enseñar algunas de las técnicas usadas en evaluaciones participativas. Finalmente la metodología participativa se sigue aplicando en el programa de mejoramiento de EPAGRI (fitomejorador EPAGRI, Rubens Marschalek).

- **Estados de Bahía, Pernambuco y Ceará**

En otro proyecto financiado por IFAD, llamado “Investigación Participativa en Mejoramiento en Yuca,” en el semiárido del nordeste del Brasil, el entrenamiento involucró al CNPMF, y entidades como CPATSA, EBDA, IPA, y EPACE. Este proyecto busca desarrollar germoplasma de yuca para condiciones de semiárido de América Latina, Asia y África. Fueron entrenados 17 investigadores y extensionistas y 85 productores.

En el primer ciclo, se establecieron 17 ensayos participativos en igual número de comunidades, en los estados de Bahía, Pernambuco y Ceará. Se obtuvo un libro de campo como instrumento de evaluaciones agronómicas y subjetivas; un vídeo como material de enseñanza para futuros entrenamientos y la introducción de la metodología como una etapa más en el proceso de selección de variedades de los mejoradores. Se cuenta ahora con una base amplia de datos para su análisis.

En el semiárido brasileño, la metodología de IPMY se ha implementado en los Estados de Bahía, Pernambuco y Ceará, bajo la coordinación del Fitomejorador de CNPMF. Se cuenta con datos de tres años para análisis estadístico, lo cual permitirá decidir sobre las nuevas variedades que entrarían en la fase de prelanzamiento (posible liberación en 1-2 años). El trabajo IPMY cuenta con el respaldo de los directivos de investigación, demostrado así por ser uno de los nominados por EMBRAPA para adjudicarle una distinción. (Anexo 2).

Estamos en un IPMY avanzado al cual sería interesante establecerle un seguimiento en épocas de evaluación, que contribuya con una buena calidad de la información además de un refinamiento de algunos aspectos de la metodología. Sería importante apoyar el Programa de Mejoramiento del CNPMF con entrenamientos dirigidos a su personal en los tres Estados, para que en corto plazo se conviertan en capacitadores en los tres estados.

A pesar de no tener recursos la Investigación Participativa en Mejoramiento en Yuca (IPMY) en el subtrópico, cuenta con un equipo de investigadores entrenados, y pruebas participativas en evaluación. Ahora, las entidades de investigación buscan nuevas estrategias para optimizar los recursos que invierten y al parecer IPMY se puede considerar como una de ellas.

La metodología IPMY, incorpora elementos del método CIAL como el diagnóstico restringido, la planeación, la evaluación, y la retroinformación, pero no incluye la organización de grupos de agricultores en forma permanente. Etapas posteriores como la difusión y la adopción podrían aumentar su probabilidad de ocurrencia con la metodología. IPMY ofrece varias alternativas de análisis de la información y un potencial muy grande de aplicación a cualquier tecnología, lo cual permite establecer ciclos de análisis de la retroinformación en una forma sostenible. (Para ejemplo, de la investigación participativa aplicada a estudios de fitopatología, (ver Anexo2), Híbridos de Mandioca Resistentes ao Superbrotamiento). El resultado más importante obtenido ha sido comprobar que IPMY es una metodología adaptable a condiciones de semiárido y subtropical, siguiendo básicamente cuatro pasos; diagnóstico, planeación evaluación, y retroinformación. Después de varios ciclos de repetir este procedimiento, es posible analizar los datos con alternativas sencillas manuales y procedimientos rutinarios de SAS.

El trabajo de Investigación Participativa aplicado en Mejoramiento de Yuca (IPMY), es ahora un procedimiento rutinario en la selección de variedades del programa de mejoramiento en el CNPMF. Con la participación de productores de los Estados de Bahía Pernambuco y Ceará, se ha establecido un proceso de retroinformación que permite en 1-2 ciclos recomendar nuevas variedades de yuca seleccionadas conjuntamente por investigadores y productores del semiárido. Sería interesante programar seguimientos, como apoyo al trabajo que realiza Mejoramiento de Yuca del CNPMF, participando en documentación de los escritos generados.

Para el análisis de la información obtenida, se hizo una capacitación al equipo del Programa de Mejoramiento del CNPMF, incluyendo la revisión de datos (libros de campo conteniendo información de 3 años), análisis descriptivo y la técnica de orden de preferencia (simular la selección de alternativas tecnológicas con alta probabilidad de aceptación, sobre la base de evaluaciones participativas).

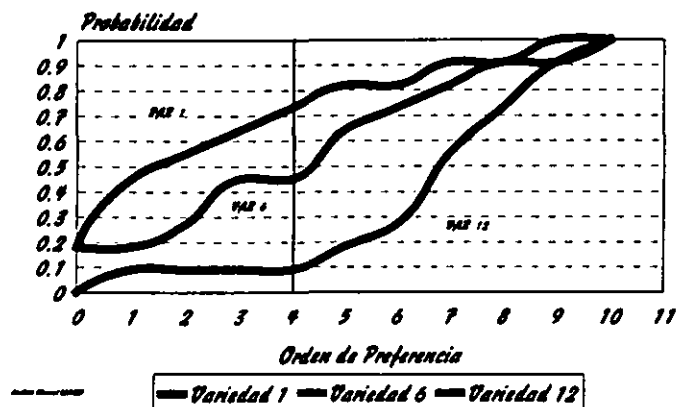
Se analizó con el equipo la importancia de establecer grupos de variedades con buena, intermedia, y baja aceptación. Se realizó una matriz de frecuencias (número de veces que la variedad ocupó una determinada posición); luego calculamos la frecuencia relativa y se elaboraron gráficas. Este procedimiento manual se ha convertido en una importante herramienta para decidir acerca de lo que se debe seguir evaluando y aquello que deberá ser reemplazado en cada ciclo (ver Figura 1).

Aceptando que el orden de preferencia lo componen tres rangos: 1-4 variedades con mayor aceptación, 5-8 variedades de aceptación intermedia, y de 8 a 11 variedades rechazadas por los agricultores; fue realizado el análisis siguiente: la muestra poblacional tomada en semiárido (tres variedades en 11 localidades), indica que la variedad No.1, ocupó cualquiera de las primeras 4 posiciones según el 70 % de los agricultores, mientras que la variedad No.12, fue ubicada en este mismo rango solamente por un 10% de los productores. La variedad No. 6, mostró una aceptación intermedia entre las dos anteriores. Con este procedimiento, hemos establecido un sencillo método de retroinformación de fácil análisis, el cual nos permite sustituir las tecnologías rechazadas por los productores por otras que tengan perfiles similares a las de mayor aceptación. Cada investigador apoyado en este análisis, puede así, establecer sus propios parámetros de decisión para seguir probando o reemplazando tecnologías en prueba.

Figura 1.

## *Simulación en la Selección de Variedades*

*Semiárido de Brasil, mayo /1997*



### **Entrenamiento en Itajai (Santa Catarina)**

En este entrenamiento la audiencia estuvo conformada por 11 extensionistas que hacen parte del grupo que comenzó su capacitación en 1993 y 2 estadísticos a nivel de PhD. Interesados en conocer las alternativas de análisis de la metodología. Este grupo, por su propia iniciativa ha continuado los trabajos IPMY y en su mayoría han asistido a todo el proceso de capacitación.

Agenda desarrollada:

- Orden de preferencia (análisis similar al realizado en el semiárido, práctica de campo).
- Discusión de los análisis estadísticos.

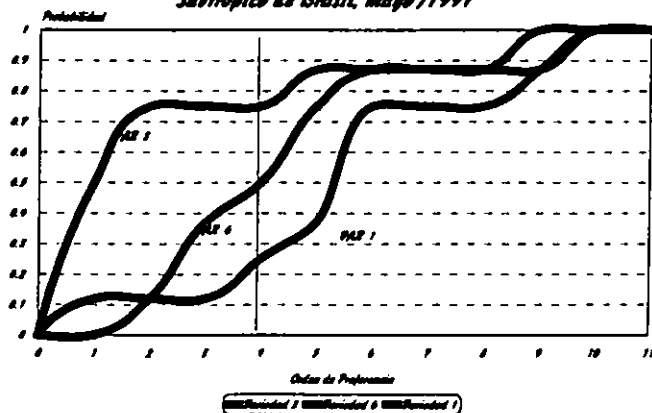
La Figura 2, muestra el resultado del análisis obtenido con una muestra de datos del subtrópico. En este caso, alrededor de un 75% de los productores ubicaron la variedad No. 3 en el rango 1-4; mientras que solo un 25% de esta misma población ubicó la variedad No. 1 en este mismo rango. Así se pueden establecer límites de aceptación representados por variedades de mayor, intermedia y baja aceptación. En un trabajo de IPMY avanzado, sería interesante cruzar esta información con los criterios que sustentan cada una de las posiciones determinando el perfil de la variedad que requiere el productor. Luego podríamos tomar la información agronómica y establecer rangos de aceptación de parámetros cuantitativos tomados por el investigador.



Figura 2. Resultado del Análisis obtenido con una muestra de datos del subtrópico de Brasil, Mayo de 1997

### *Simulación en la Selección de Variedades*

*Subtrópico de Brasil, mayo 1997*



Estos análisis son realizados con calculadoras de bolsillo, pueden ser también ejecutados con ayudas en computador a través del paquete LOGIT Análisis de SAS. En este caso, podemos encontrar las diferencias estadísticas en las preferencias de las tecnologías evaluadas por los productores, estableciendo intervalos de confianza.

Finalmente, fue discutida la importancia de las alternativas para el análisis estadístico de toda la información generada por IPMY. El procedimiento de transformación de escalas, construcción de matrices, componentes principales, y cluster; fue considerado como de gran potencial para ser aplicado en IPMY, como también en otros trabajos participativos con otros cultivos (pasturas, y hortalizas).

Fue comentado que la investigación participativa, puede llegar a ser una de las respuestas que esperan las Estaciones Experimentales frente al cuestionamiento de algunas investigaciones tradicionales realizadas en EMBRAPA.

(2) *Introducción de la metodología al proyecto del Banco Interamericano de Desarrollo-BID, en Sergipe, Itabahia.*

El Estado de Sergipe en el nordeste del Brasil, es vecino de los Estados donde existen COPAL (CIAL) dentro del proyecto PROFISMA financiado por UNDP. Agricultores y funcionarios de distintas entidades de Sergipe, conocen la metodología CIAL han visitado los trabajos de investigación participativa, observado sus evaluaciones, diagnósticos y demás actividades y están estudiando la posibilidad de incorporar esta metodología como el componente básico de participación de los pequeños productores dentro del componente agrícola parte substancial de un proyecto de desarrollo rural más amplio llamado PROSERTAO. Para conocer la parte conceptual de la metodología, solicitaron a IPRA a través del CNPMF, un curso sobre la metodología de diagnóstico participativo al cual asistieron 35 representantes (básicamente directivas y coordinadores de proyectos), de las distintas entidades participantes en PROSERTAO.

Posteriormente, fue solicitado entrenamiento para técnicos que trabajarían con el Programa de Mejoramiento de yuca del CNPMF, en el proyecto PROSERTAO. La audiencia para este entrenamiento, estuvo compuesta de 24 extensionistas, capacitados en conceptos básicos de Investigación Participativa y con interés en IPMY para comenzar a evaluar variedades tolerantes a pudrición de raíces. En el trabajo de campo se realizó un diagnóstico restringido al cultivo de yuca determinando las prioridades para los agricultores de Frei Paulo. Los productos del entrenamiento fueron:

- Entrevistas con productores (vídeo didáctico realizado en Brasil).
- Evaluaciones abiertas.
- Criterios de selección.

- Tabulación de la información.
- Libro de campo, y
- Simulación de la selección de tecnologías con métodos manuales de análisis.

Los profesionales se mostraron interesados en incluir la metodología en el proceso de selección de variedades, buscando alternativas viables para los productores de la región. Los grupos, trabajando separadamente, encontraron como resultado del diagnóstico que pudrición, variedades y cultivos asociados, eran la prioridad para los cultivadores de yuca en Frei Paulo.

Sería conveniente establecer un acompañamiento más de cerca para este grupo de profesionales, asistiendo a evaluaciones programadas durante el ciclo del cultivo (programación de nuevos entrenamientos específicos a las tres las fases de evaluación).

Para decidir si una tecnología nueva es una alternativa aplicable a las formas habituales de producción agropecuaria, es necesario comprender las necesidades humanas que se intentan satisfacer, además de considerar los aspectos técnicos. En este sentido, la metodología de investigación participativa permite entender las necesidades de los productores y en consecuencia, la aceptación o rechazo de las alternativas tecnológicas que evalúan. Sabemos también, que con evaluaciones participativas podemos obtener productos como la autogestión de grupos organizados de productores (CIAL); procesos de retroinformación a la investigación (ejemplo: (IPMY) incrementando la difusión y la adopción de nuevas tecnologías, y autogestión con grupos organizados de productores en evaluaciones conducidas por investigadores, dentro de sistemas de producción (ej.: los CADET en la Costa Norte de Colombia).

## 2. NORTH COAST OF COLOMBIA

### PLAN PARA LA MODERNIZACION DE LA AGROINDUSTRIA DE LA YUCA EN LA COSTA ATLANTICA.

#### Avances de los Proyectos Tenológicos del PLAN de Yuca.

#### 1- ANTECEDENTES.

En el desarrollo del "PLAN" para la Modernización y Fortalecimiento de la Agroindustria de la Yuca, el Ministerio de Agricultura y Desarrollo Rural, a través del Programa de Modernización y Diversificación PMD, direccionó un modelo de asistencia técnica y asesoría socio-empresarial con el fin de optimizar la capacidad instalada de las plantas de secado, rentabilizar el proceso productivo, y posicionar los mercados en condiciones de eficiencia y productividad. Para desarrollar el modelo, se realizó una Reunión de Planificación del Programa de Investigación en abril/95, priorizando los limitantes tecnológicos (diagnóstico participativo), estableciendo propuestas para solucionarlos (oferta tecnológica, basados en conceptos de sostenibilidad, competitividad y equidad) y luego estimando su viabilidad con los usuarios a través de los CADET's (Comités Agrícolas de Desarrollo Tecnológico). La generación del modelo, denominado "Investigación Participativa con el enfoque de Sistemas para el Desarrollo y Adopción de Tecnologías en Yuca, de la Región Caribe" se basa en la participación, toma de decisiones y diseño conjunto de las alternativas a probar (validación) y experimentar (desarrollo).

Siguiendo el procedimiento descrito, se seleccionaron las siguientes alternativas en el área de producción: a) desarrollo de variedades mejoradas y distribución de semilla básica de yuca, b) manejo de suelos y de fertilización, c) requerimientos nutricionales y d) manejo integrado de plagas. En el área de poscosecha las propuestas presentadas no estimaron correctamente los limitantes encontrados.

Generación de un Modelo de Investigación Participativa con el Enfoque de Sistemas para el Desarrollo y Adopción de Tecnologías en Yuca en la Región Caribe.

b) El Modelo está cumpliendo con los objetivos previstos , con las siguientes características 1) tiene el enfoque de un sistema de producción, 2) se genera en el sistema de producción más importante de la costa Atlántica, yuca-maíz, 3) el usuario tiene la oportunidad de diseñar, probar y experimentar desde el comienzo, mediante estructuras organizativas denominadas CADET's. Alrededor de ellos, participan UMATAS, ONG's, entidades de investigación y de la Industria y 4) los CADET's son cooperativas con financiación propia y con un papel importante en mercadeo, multiplicación de semillas y beneficio a la comunidad.

c) Mediante selección de participantes (entidades y agricultores), se determinaron los actores del modelo. Ahora avanzamos hacia unos CADET's maduros, con capacidad, en Diagnóstico, Planeación, Evaluación y Retroinformación. Se establecieron los mecanismos necesarios para que los ensayos y las pruebas de validación fueran evaluados por los agricultores, comenzando el proceso de retroinformación al modelo participativo.

d) En Ciénaga de Oro, Los Palmitos, Plato, El carmen de Bolivar, Pivijay, contamos con un CADET, un participante de ONG's, uno de la UMATA y uno de la Industria por sitio. Se logró el primer encuentro de los CADET's, para intercambiar información, priorizar necesidades y ajustar las propuestas. Resultados preliminares a partir de los análisis descriptivos, sugieren como posibles criterios de selección (mayor frecuencia relativa) a vigor de la planta, cantidad de malezas, humedad del suelo y facilidad de cosecha, en tratamientos con Mulch (pruebas de validación de suelos). La presencia del barrenador, el vigor de las plantas, la producción de semillas, y de raíces son los criterios de mayor frecuencia en los trabajos de manejo integrado de suelos. Contamos también con criterios de mayor frecuencia por sitio y por prueba, y con escalas de evaluación dadas por los agricultores.

### CONCLUSIONES GENERALES.

- ❑ Los Comités Agrícolas de Desarrollo Tecnológico CADET's . establecen respuestas participativas de desarrollo y validación de tecnologías en sistemas de producción de yuca en la Costa Atlántica. Es posible trabajar con productores organizados (cooperativas), que focalizan prioridades en estos sistemas de pequeños agricultores .
- ❑ Se han conseguido avances concretos que comienzan a resolver interrogantes desconocidos hace dos años. Aspectos de conservación de suelos, manejo de plagas y enfermedades, y variedades son materia prima para la solución de limitantes en la producción.
- ❑ El inicio de una segunda fase, debe incluir reestructuración de alternativas basados en las opiniones de los productores.
- ❑ La estructuración de un modelo participativo en un sistema de producción, implicó un proceso de planificación, el cual hoy se justifica con la concordancia entre lo proyectado con los logros alcanzados. Se ha rescatado el trabajo de grupos multidisciplinarios trabajando conjuntamente (Grupo de Yuca y Asociados), con experiencia en investigación participativa diseñando un modelo con probabilidades de funcionar.

### **C. BEAN PPB (in association with CIAT Africa)**

#### **NARS and PPB in Africa: Expert Consultation.**

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This May 1997 consultation was held at the NARS' request and aimed to strengthen ongoing work and stimulate new programs in Participatory Plant Breeding with Beans in East and Central Africa. National Bean breeders participated from Ethiopia, Tanzania, Zaire, and Ethiopia as well as five members of the CIAT African bean team.

The meeting elaborated three separate PPB programs, two of which have subsequently been funded by DFID. (The Zaire program in "on hold" until the civil situation becomes more stable: key researches have yet to return to the NARS station).

In brief the three programs aim to address three strategic methodological issues in PPB: testing the effects of decentralization v. participation (Ethiopia); exploring the advantages of involving farmers in actual

hybridization in a market-driven context (Tanzania); and quantifying the importance of user differentiation in relation to benefits achieved (Zaire).

Summaries are as follows:

- In Ethiopia, the national program is proposing to take a two-pronged approach in order to decentralize selection and expose farmers to a wide range of genetic material. About 20 advanced/stabilized lines will be taken on-farm for direct farmer evaluation (versus the usual 3 or 4 on offer post-release). Farmers will also be invited to screen a large number of fixed and segregating lines at the research station in order to hone knowledge of varied farmer selection criteria. Insights gained from on-station and on-farm screening will then refine the next generation of "germplasm pools" delivered to farmers.
- In Tanzania, the national program aims to involve farmers, particularly women experts, in the actual choice of crosses for hybridization. The pool on first offer will include: released varieties, popular market types, a range of local varieties and improved varieties which show exceptional characteristics (disease, insect resistance, etc.). Having guided the crosses, farmers will also be involved in four subsequent stages: making selections from segregating populations, evaluating selections on their own farmers, allowing other farmers to evaluate consumption and marketing qualities, and eventually taking the lead in initial seed multiplication.
- The Zairian work will focus specifically on how to best learn about different user needs. Distinct types of groups will evaluate early generation material--and breeders will then construct germplasm pools specifically according to customized client-preferences. Such tailored screening will be directly compared with what emerges from the classic trial procedure.

The May consultation allowed the NARS and CIAT scientists together to develop their general conceptual framework, elaborate hypotheses, share insights on methods, and start to develop indicators to evaluate the costs/benefits and more general effects of their proposed PPB experiments.

## **PROJECT OUTPUT:**

# **IMPROVED CAPACITY TO CONDUCT PARTICIPATORY RESEARCH AND GENDER ANALYSIS**

### *Activities*

*Convene international workshops and seminars for SN-2 and systemwide program.*

*Conduct or facilitate in-house training on participatory research methods and gender analysis for CIAT staff and projects.*

*Institutionalize capacity to teach the CIAT methodology with partner institutions (especially universities) in four focus sites by conducting courses, follow-up training, and training of at least 40 trainers.*

*Feed results into development of public awareness materials (linked to SN-2).*

*Worldwide dissemination of methods and results in conjunction with the CGIAR systemwide program partners.*

## **A. CGIAR SYSTEMWIDE PROGRAM ON PARTICIPATORY RESEARCH AND GENDER ANALYSIS FOR TECHNOLOGY DEVELOPMENT AND INSTITUTIONAL INNOVATION**

### **MID-YEAR PROGRESS REPORT**

#### **PROGRAM GOAL**

To improve the ability of the CGIAR System and other collaborating institutions to develop technology which alleviates poverty, improves food security and protects the environment with greater equity.

#### **PROGRAM PURPOSE**

To assess and develop methodologies and organizational innovations for gender-sensitive participatory research, and operationalize their use in plant breeding, crop and natural resource management.

#### **INTRODUCTION**

The participation of farmers, especially women, in technology development is vital for achieving impact that benefits poor people. Household food security, and especially the well-being of children in poor countries, is vitally affected by women's access to technology appropriate for their needs. This is why the CGIAR system has decided to strengthen, consolidate, and mainstream its gender analysis and participatory research in a high-priority, high-visibility program that recognizes farmer participation as an important strategic research issue.

Over the last decade or more, substantial work has been done to introduce a user perspective into adaptive research. Recent evidence suggests that user participation can be critical in the *pre-adaptive* stages of certain types of research, when it brings users into the early stages of technology development as researchers and decision makers, who help set priorities, define criteria for success, and determine when an innovation is "ready" for release. This new role changes the division of labor between farmers and scientists, and may dramatically reduce the cost of applied research. We have some evidence that this novel approach can significantly improve the impact of research for poor farmers, especially women. However, evidence is patchy and it is not well understood how to replicate success on a large scale. A key contribution of this program will be to develop clear guidelines on how to achieve this, and build capacity to operationalize novel approaches in practice.

In December 1996, the CGIAR Technical Advisory Committee (TAC) decided to include this program in the CGIAR approved research agenda. The proposal, sponsored by four CGIAR international research Centers -- CIAT (the convening Center), CIMMYT, ICARDA and IRRI -- had been prepared after a year of consultation with a wide range of donors, practitioners and other users of participatory research methods and gender analysis in agricultural development, a process which culminated in the International Seminar and Planning Meeting held in Cali, Colombia in September, 1996. At this meeting a group of fifty researchers, development professionals and donor representatives identified methodological issues needing further work. They then divided into three working groups on participatory plant breeding (PBG), participatory natural resource management (NRMG) and Gender Analysis (GWG) and developed the detailed workplans which would guide the Program's future activities. A detailed synthesis of the issues discussed at that meeting is available in the published proceedings titled New Frontiers in Participatory Research and Gender Analysis (SWP PRGA, 1997).

In the period January to March, 1997 the convening Center, CIAT continued to provide the overall coordination of the three Working Groups by email, and conducted the search for three short-term facilitators to assist each working group in carrying out the first steps in their workplan, which would lead to funding of new research through the program. The PBG facilitator and the GWG facilitators began work in April, 1997 and so the formal implementation of the Program's workplan is scheduled from April, 1997 to March 1998. This report provides information on the activities undertaken in the first six months of implementation of the workplan.

## **PROGRAM ORGANISATION**

The program of work required to achieve the expected outputs identified by the participants in the SWI Planning Meeting exceeds the individual capacity of any one of the cooperating institutions. The research program has been designed to be implemented through collaboration among IARCs, NARIs, NGOs and grassroot organizations. This collaboration demands transparent and cost-effective organization. Principles of organization were developed by the "Partnership" task force at the September 1996 Planning Meeting and endorsed by the participants.

**Planning Group** composed of eight elected members:

- Three representatives, one elected from each of the three working groups;
- Four representatives elected from each of the four stakeholder groups in the initiative: NARIs, NGOs, IARCs (not including the convening center) and donors;
- One member from the Convening Center.
- **Coordination** is provided by the Convening Center, CIAT.

**Three working groups:** participatory plant breeding; participatory natural resource management research; and gender analysis. Working groups involve practitioners from IARCs, NARIs, NGOs, GRO's and

indigenous research systems in implementing studies consistent with the common workplan developed in September 1996. Working groups include a mix of biophysical and social scientists. Working group members meet face to face in periodic research workshops, or site visits; and members contribute to the Program's regular international seminars.

## **PARTICIPATORY PLANT BREEDING WORKING GROUP**

### **WORKPLAN**

#### **Outputs**

The five-year workplan developed by the participatory plant-breeding group (PBG) specifies four main outputs:

- Effective participatory methods in plant breeding assessed and developed, with focus on farmer's breeding; plant selection (segregating lines); and variety selection (fixed lines).
- Beneficiary groups accurately involved and targeted.
- Effective organization for operationalizing participatory breeding in the research process identified and developed.
- User access to products of participatory breeding assured through identification of effective organizational forms and links to supporting seed services.

#### *Activities*

The proposed activities for achieving these outputs include: inventorying and comparing existing participatory breeding strategies across crops and environments; implementing empirical studies for comparing different strategies; assessing the impact of various strategies on different types of users, in particular poor farmers and rural women; analysis of the costs of different participatory approaches and ways of institutionalising participatory plant breeding, with especial attention to local seed systems; dissemination of results and methods in the form of guidelines for breeders (including farmer breeders), research managers, development professionals and policy makers.

The empirical studies of PPB were given a powerful foundation by a series of grants associated with the establishment of this systemwide program, which were made by IDRC's "Saving Biodiversity Program to a number of CGIAR Centers and to the "Using Diversity" network in Asia, including: CIMMYT: CG Maize Diversity Conservation: A Farmer-Scientist Collaborative Approach; (\$250,000.00CAD), ICARDA: Farmer Participation in Barley Breeding (\$219,370.00CAD), Salvatore Ceccarelli; IPGRI: Scientific Basis of In-situ Conservation of Agricultural Biodiversity (\$241,910.00CAD); IRRI: Component of the System Wide Initiative on Rainfed Rice in Eastern India (\$220,000CAD).

#### *Specific Objectives for 1997*

- Conduct an analysis of the "state of the art" in participatory plant breeding (PPB) in CGIAR Centers, other types of institutions and in farming communities, through commissioned papers, email conferencing, and focussed expert consultation workshops;
- Derive a framework for comparative analysis of existing approaches, and for identifying knowledge gaps and high priority needed research;
- Develop guidelines for funding new empirical studies, and implement in 1997 a small grant program to address these knowledge gaps with a focus on comparative experimentation with new approaches;
- Disseminate information and enhance dialogue among practitioners and users of PPB in a wide diversity of institutions.

## **PROGRESS BY MID-YEAR**

Significant progress on these objectives has been achieved since the PBG started work in April, 1997.

### ***E-mail conferencing on concepts and current practice in PPB***

A Work Group facilitator, Dr. Louise Sperling, was contracted. An initial email conference (PBG@cnet.com) was set up to unite those interested in participatory approaches in breeding. The 50-member group is drawn from Africa, Asia, Latin America and Europe, and, aside from CG has healthy representation from the NARS, university and NGO sectors. The first two exchanges have focused on defining the broad outputs, which might be achieved by PPB approaches and on formulating hypotheses, and indicators which might link to such outputs. Breeders, economists, sociologists, and development workers are engaged in these exchanges.

A second list-serve has been set up directly in response to increased interest in one approach to PPB called "farmer breeding", that is, when scientists and development workers strive to build on farmers on systems of breeding, varietal selection and seed maintenance. To-date, thirty people have explored the initial question "what exactly is farmer breeding" "what might it look like, what are its components?." While there is small overlap with the first group (i.e. those mainly trained in formal sector breeding), this second dialogue is being spearheaded by the NGO and university sector, with a small but important voice from CG/NARS scientists.

The purpose of both dialogues is to add value to what practitioners are already implementing or planning to do.

### ***Commissioned Papers on State of the Art in PPB.***

In May, the PBG prepared the Terms of Reference for three papers focusing on research design issues in PPB. Two of these have been commissioned, with the third contract about to be awarded.

The terms of reference for commissioned papers have been designed, circulated and approved by the Planning Group and the more general SWP constituency. They focus on a) technical and institutional issues when farmers join in formal breeding work; b) technical and institutional issues when scientists support farmers' own breeding and c) the gender and user issues as they cross-cut both. The aim of these papers is to synthesize our "state of the art" in these three realms, to assess the range of options available and to highlight issues and gaps which need priority work.

The overview of technical and institutional issues in farmer-led PPB (that is, when scientists seek to support farmers' own systems of breeding, varietal selection and seed maintenance) is being done by Shawn McGuire (Wageningen Agricultural University) and Gigi Manicad (Biotechnology and Development Monitor). They have had significant support from the Farmer Breeding-L email network. The first draft of this paper will be available early October.

The overview on technical and institutional issues in formal-led PPB (that is, when farmers join in breeding experiments which have been initiated by formal breeding programs) will be carried out by Margaret Smith (Cornell) and Eva Weltzien (ICRISAT). We plan to have a first draft by early March, 1998. Again, the email network will give all a chance to share views on very specific research design issues as well as on more general conceptual themes.

Papers on state of the art will be published and also available from the Program's Home Page on the WWW (to start up in January, 1998).



### ***Workshops on PPB Research Design Issues***

Two research design workshops have been completed within this period. The first, held in Kenya in mid-May, was designed specifically to help African NARS (in this case, those of Zaire, Ethiopia and Tanzania) conceptualize an appropriate PPB strategy, define a research framework and methodology, and identify the practical requirements for getting started. The second, held in the Netherlands, late June, brought key experts together to consider issues of research design and to help move some of the tougher PPB methodological and institutional issues forward. This expert consultation, which gave equal focus to approaches in which farmers join formal breeding experiments and those in which scientists support farmer breeding, developed a broad comparative framework for PPB projects, set guidelines for rigorous research design across sites, and started to flesh out hypotheses and indicators which should cross-cut PPB experiments to permit truly comparative analyses globally. The insights of the second consultation will be freely available and widely published to help inform fledgling work worldwide.

### ***Working Paper "Guidelines for Participatory Plant Breeding"***

A first draft of this guide is now available. It is drawn from our Cali Meeting in September 1996, the Hague expert Consultation in June 1997 and email networks exchange. The guide is provisional and meant to be sharpened and revised through use. The guide looks at the various options for supporting farmer breeding and for more effective involvement of farmers in formal sector breeding programs. It discusses in detail the different phases of a PPB initiative: setting goals, deciding which germplasm to use, which farmer skills to build on, joint evaluations, seed system support.

### ***Inventories of PPB work-in-progress***

In order to get the widest possible coverage, the PBG has been actively linking up with other breeding, farming systems and agricultural development networks to enhance, not duplicate efforts. A summary of the PBG work was widely circulated in the first FAO-sponsored Plant Breeding Newsletter-Email--(with the editor remarking that it was only item to stimulate vigorous exchange). The PBG is also linking with IDRC's field-based "Using Diversity" Network in Asia through joint list-serves, and has been able to tap into such conferences as that of "Agriculture and Human Value" to share information. Inventories of PPB work are showing that there are many PPB efforts "on the ground" being brought into the dialogue about best practices.

We have started to gather material on PPB projects around the world, so as to get an idea of the scope of work; strengthen our partnerships; and build a library of information for more general use. We call these 'inventories' although we are using a format which is dynamic and which gives equal voice to the both small, local, farmer-driven programs and the larger, multi-institutional PPB programs which aim for wide geographic coverage. We will make these syntheses widely available by beginning of next year. At present, we have identified about 50 programs in total (both farmer- and formal-led PPB). Those wishing to share insights on specific programs are welcome to do so through the PBG as a whole or via the facilitator, L.SPRLING@cgnet.com

### **FUTURE PLANS**

In the next six months, the PBG will pursue in-depth four major issues identified as critical during the start up period.

- *A comparative framework* will be finalized to allow partners to assess the state-of-the art in methodology and organizational innovation of PPB--and to re-assess gaps identified during two previous consultations. This will be accomplished through completion of: a) inventories of PPB programs, conducted

- interactively with practitioners in the field, and b) commissioned papers on 'technical and institutional issues in participatory plant breeding, from both the formal-led and farmer led perspectives (2 papers).
- *Key field-based studies and programs* sponsored by the SWP PRGA will be initiated during this period preceded by an open, broad-based solicitation of proposals and screening by an Expert panel and the Planning Committee of the SWP PRGA. Proposals will be funded based on criteria set by the 'Task Force on Partnership' (Cali 9/96) and the 'Expert Consultation on Research Design Issues in Participatory Plant Breeding' (Hague 6/97).
  - *Methods and Design Issues for PPB Impact assessment* will form the third thrust and be explored through: commissioning of key papers; and face-to-face consultation between impact/evaluation experts and field practitioners. The theme is particularly complex as PPB outcomes can be quite diverse (e.g.: biodiversity enhancement; better targeting of women'/users' needs: cost-efficiencies in research) and trade-offs among potential impacts need to be considered.
  - *Hearing Farmer-Breeders' Voices* a study to document farmer breeding will be initiated, the program will sponsor workshops among farmer-breeders interactions among farmer-breeders and other breeders; in-depth interviews with key farmer breeders and joint field analysis of farmer-breeding methods.

## **PARTICIPATORY NATURAL RESOURCE MANAGEMENT WORKING GROUP**

### **WORKPLAN**

#### *Outputs*

The natural resource management working group (NRMG) developed a five-year work plan, which specifies four major outputs:

- Synthesis of the state of the art in applying PR/GA<sup>1</sup> approaches in NRM research for different types of technologies across three scales of management<sup>2</sup> compared.
- Improved crop and natural resource management strategies incorporating better use of existing and new PR/GA methods at different scales of management developed and disseminated.
- Organizational capacity to use PR/GA methods in NRM research, improved with a focus on: farmers, local institutions, individual scientists and extension workers, and research and extension institutions.
- Effective methods for involving gender differentiated and other direct and indirect stakeholders in NRM developed.

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<sup>1</sup> PR/GA refers to the use of gender analysis to identify types of users by gender, wealth and other variables, and participatory methods inclusive of different types of users.

<sup>2</sup> Three scales of NRM are (a) field and farm level, (b) community, and beyond community, for example watershed management.

## ***Activities***

The activities planned for achieving these outputs include: inventory and assessment of current participatory methods and gender analysis in use for improving natural resource management technology in processes involving individual farmers and through collective action; identification of a number of cases for empirical study, to experiment with and compare of different approaches; action research on alternative ways to scale up coverage of participatory approaches to NRM research; comparison of options for institutionalising various approaches; dissemination of guidelines on implementing innovative approaches, their costs and benefits, and organisational support needs.

### ***Specific objectives for 1997***

- Inventory and assess current "best practice" in the use of participatory research methods and gender analysis for technology development in NRM, and the institutional arrangements that support this, through commissioned papers and email conferencing
- Conduct regional workshops and one global workshop to identify the high priority knowledge gaps, and develop guidelines for funding new work through case studies.
- Select a number of cases (at least six) for funding in 1998; these will be empirical studies with a focus on comparative experimentation with new methods and capacity building, including approaches to scaling up participation and coverage; use of community-based resource monitoring tools; support for farmer invention and experimentation with NRM technologies.

## **PROGRESS BY MID-YEAR**

### **Working Group facilitator appointed**

A long search was conducted for a facilitator for the NRM Working Group in spite of the availability of several good candidates, because the Program coordination gave priority to maintaining a diversity of institutional perspectives among the working group facilitators. With two facilitators based in the north and associated with CGIAR Centers, diversity meant looking for a qualified individual associated with an institution based in the south which could support the email connections required for facilitation. In June the possibility of working with a member of the NGO SRISTI in India had been identified, and in mid-September 1997, Dr Brij Kothari, of the Indian Institute of Management, Ahmedabad, joined the program together with Dr Astad Pastakia of SRISTI as cofacilitators.

## **GENDER WORKING GROUP**

### **WORKPLAN**

#### ***Outputs***

The five year work plan of the Gender Working Group gave priority to ensuring that gender/user differentiation and gender/user sensitive participatory research are integrated, documented, and tracked in the state of the art papers and empirical studies of the two working groups on participatory plant breeding and natural resource management. The GWG five-year workplan identifies two outputs specifically with a gender focus which the group identified as bottlenecks in the integration of gender analysis and gender sensitive participatory methods into agricultural research:

- Effective methods and capacity for using gender analysis in technology development and institutional innovation are documented, developed and disseminated.<sup>i</sup>
- The costs and benefits of using gender analysis and gender sensitive participatory research in technology development are assessed<sup>ii</sup>.

Achieving these outputs involves synthesising the outcomes of the empirical work funded through the small grant program, in the PBG and NRM projects and studies.

### ***Activities***

Activities include identification of the current best practices in integrating gender analysis and gender sensitive participatory research in agricultural research; identifying constraints to including women and other types of users in pre-adaptive technology development; assessment of the methodologies for identifying and including different kinds of users, including those differentiated by gender, in a research program and of the costs and benefits of their inclusion; publication and dissemination of guidelines on the effective inclusion of gender analysis; and training and capacity building for a broad audience including all the CG Centers.

From the beginning, the GWG members are drawn from one or the other of the two working groups on PB or NRM. This helps to ensure integration into the activities of these two groups. For example, both the PBG and the NRMG workplans have specific outputs and activities related to differentiating user groups, and specifically involving and benefiting poor rural women.

### **RELATIONSHIP TO THE CGIAR GENDER ANALYSIS PROGRAM**

This Program's Gender Working Group has been part of the CGIAR Gender Analysis Program (currently housed in the CG Secretariat) led by Hilary Sims Feldstein who contracted a working group facilitator, Jennifer Green, in April 1997.

### **PROGRESS BY MID YEAR**

The Gender Working Group has made moderate progress since beginning work in April 1998. During that time the GWG has collaborated extensively with the Plant Breeding Group, has initiated collaboration with the NRMG, and has proceeded to plan the development of training and technical assistance capacity in gender analysis.

### ***Gender Issues in Participatory Plant Breeding***

The GWG contributed substantively to the terms of reference for two PB commissioned papers, one focusing on technical and institutional issues on farmer led plant breeding and the other on formally led plant breeding. TOR and requests for candidates to write the papers were circulated with the focal points of the CGIAR Centers and with members of the gender-rsrch email network.

Jointly with the PBG, terms of reference were developed for a paper focusing specifically on best practices and the identification of gaps

- in the use of gender analysis or other means of differentiating relevant users
- in the extent and nature of gender sensitive participatory research.

The research gaps which be addressed in the PB empirical studies.

The terms of reference have been widely circulated in a search for a north/south team with knowledge and experience in gender analysis and plant breeding. It is expected that this paper will be commissioned in November 1997.

The GWG Coordinator participated actively in the PPB research design workshop at the Hague.

### ***Gender Issues in participatory Natural Resource Management***

In order to lay the groundwork for consideration of gender issues with respect to technology development and institutional innovation in natural resource management, terms of reference have been developed for a paper identifying best practices and research gaps in current and recent projects. The TOR were circulated to the NRM group and are being revised in order to narrow the focus.

### **FUTURE PLANS**

In 1998 the Systemwide GWG and the CGIAR Gender Analysis Program propose to merge their activities and responsibilities under one coordinator, who will implement the systemwide GWG research workplan, and will continue the gender analysis small grant program and technical support specifically targeted to CGIAR centers.

Several expert consultations were conducted in 1997 to identify regional capacity to provide training and technical expertise in gender analysis. Based on these consultations, the GWG plans to carry out regional inventories of training capacity in gender analysis and gender sensitive participatory research, particularly in natural resource management, and to hold a gender analysis training design workshop with highly experienced international and regional trainers early in 1998. The inventories and design workshop will provide the guidance and means for conducting regionally based traveling seminars proposed for later in 1998.

Technical assistance and training offered to CGIAR centers would be expanded in 1998, to ensure that the results coming out of the GWG are widely disseminated within the CGIAR. The proposal is to provide a travelling seminar, staffed by a roster of experienced trainers assembled from different regions of the globe, and cofinanced with Centers by the systemwide program for this purpose. The travelling seminar will provide awareness training, methodology and support in writing proposal(s) to implement gender analysis and participatory approaches in an ongoing project of the Center's choosing. The systemwide program will assist in fundraising for proposals developed in this way.

The travelling seminar will be offered to a select number of interested, non-CGIAR institutions which PBG or NRMG members indicate as priorities for participation in this activity, in order to reinforce or create an enabling institutional environment for their work-in-progress.

In 1998 three regional workshops in Asia, Africa, and Latin America (drawing on an idea first formulated by IRRJ), are proposed which will identify knowledge gaps and high priority research topics for technology development. The workshops will focus on the changing needs of rural women for new technologies. Women's new needs will be related to the feminization of agriculture and the effects of the open economy on the gender division of labor in agriculture.

### **IMPACT ASSESSMENT AND PROGRAM EVALUATION**

#### **OBJECTIVES**

This Program is concerned with impact assessment from two angles.

- (1) objective and scientific assessment of the methods:** impact of using participatory research approaches and gender analysis for technology development on
  - the adoption of technologies, particularly by poor farmers and rural women;

- the payoff to institutions from using these methods in terms of efficiencies obtained by more demand-driven research and enhanced capacity to design well-targeted technologies.
  - the capacity of farmers and farm communities to do location-specific research
- (2) **the impact of the Program itself** on the appropriate use of participatory research and gender analysis in technology development, and the institutionalisation of these methods as part of "normal science" in the CGIAR and its partners

## **PROGRESS TO MID-YEAR**

### *Impact assessment of the methods*

This is an integral part of the ongoing work. Each working group is including assessment of the impact of the methods into surveys of the state of the art, as well as new work to be funded through the Program. Email conferencing by the PBG has sought to compile ideas on the indicators of impact that the PBG will use, and the results to date are given in detail in their recent working paper "Guidelines for Participatory Plant Breeding."

The Program has consulted the CGIAR's impact assessment and evaluation group (IAEG) which has formally decided to include the Program in its activities. Details will be worked out once the IAEG is fully staffed.

The Program has conducted an extensive email search for relevant expertise in impact assessment and is compiling a roster of experts which Program participants will be able to consult for specific needs. An agricultural economist with expertise in gender analysis and participatory research approaches has been contracted part time to assist the program in future activities detailed below.

### *Program evaluation*

Progress in methodology development and organizational innovation will be assessed annually by the Program's Planning Group, through independent consultants; Working Group technical reports; and papers on comparative analysis presented in the Systemwide Seminars. Indicators of progress and impact have been identified by the PBG, NRM and GWG (Tables 1, 2 and 3). Partner institutions will involve IARCs, NARIs, NGOs, farmers and other stakeholder groups in project-level monitoring and evaluation.

A full program evaluation will be scheduled near the mid-term point (Dec, 1999) and at completion (5-year). Representatives from all major partner groups will be invited to participate (CGIAR, NARIs, NGOs, Donors and other stakeholders). Community evaluations of the program at each project site will be synthesized and integrated into the central evaluation findings.

## Program Evaluation

Table 1. Outputs and Indicators of Participatory Plant Breeding Working Group

OUTPUTS	INDICATORS
<p>1. Assessment and development of effective participatory methods in plant breeding, with focus on 3 types:</p> <ul style="list-style-type: none"> <li>- farmer's breeding</li> <li>- plant selection (segregating lines)</li> <li>- variety selection (fixed lines)</li> </ul>	<ul style="list-style-type: none"> <li>1.1 Methodology guidelines published for all three approaches.</li> <li>1.2 Methods in use in at least four cases involving National programs and NGOs (at least one case) for each type</li> <li>1.3 Publications disseminated on the field level results of the use of such methods.</li> <li>1.4 Workshops to exchange results conducted.</li> </ul>
<p>2. Beneficiary groups more accurately involved &amp; targeted in participatory breeding through methods development for involving direct &amp; indirect stakeholders</p>	<ul style="list-style-type: none"> <li>2.1 Published guidelines on the cost-benefits of different approaches to involving and targeting differentiated users</li> <li>2.2 Synthesized findings on how to involve hidden and indirect stakeholders and how to resolve conflicts among diverse groups</li> <li>2.3 Evidence available that PB products are more user-differentiated</li> <li>2.4 Evidence available that indirect stakeholders, such as extension have been involved.</li> </ul>
<p>3. Effective organizational forms for operationalizing participatory breeding identified and developed in the research process</p>	<ul style="list-style-type: none"> <li>3.1 Ways existing breeding programs organize and fund links with farmers reviewed and documented</li> <li>3.2 Reports available on organizational options for participatory breeding along with cost-benefit analyses of these</li> <li>3.3 Guidelines for decision-makers on promising organization forms</li> <li>3.4 Capacity-building through training and consultancies provided.</li> </ul>
<p>4. User access to products of participatory breeding assured through identification of effective organizational forms and links to supporting seed services.</p>	<ul style="list-style-type: none"> <li>4.1 Synthesis of case studies on how to strengthen local seed system</li> <li>4.2 Published analysis on the role of the formal seed system in PB approaches</li> <li>4.3 At least 2 channels identified which move PB products rapidly to different users</li> </ul>

## Program Evaluation

Table 2. Outputs and Indicators of NRM Working Group

OUTPUTS	INDICATORS
<p>1. Synthesis of the state of the art in applying PR/GA approaches in NRM research completed</p> <p>2. Improved crop and natural resource management strategies incorporating better use of existing and new PR/GA methods developed and disseminated</p> <p>3. Organizational capacity to use PR/GA methods in NRM research. Improved with a focus on:            -farmers            -local institutions            -individual scientists and extension workers, and            -research and extension institutions</p>	<p>1.1 Inventory and assessment of available methods for PR/GA in NRM research completed and available as a working paper.</p> <p>1.2 Up to four regional workshops held to compare currently used PR/GA methods</p> <p>1.3 One global workshop held to identify the constraints and gaps in PR/GA approaches and to define the focus and determine priorities for next phase of research.</p> <p>1.4 Proceedings of workshops published and disseminated.</p> <p>2.1 Workshops conducted at up to 6 research sites to incorporate gender analysis and gender sensitive participatory methods into project activities</p> <p>2.2 Guidelines prepared on methods for scaling up of NRM options and participatory NRM methods.</p> <p>2.3 Up to ten experiments on how resource user and researcher experimentation fit together conducted and evaluated.</p> <p>2.4 Up to three community based and 3 researcher based resource monitoring tools tested, compared, and results ready for dissemination</p> <p>2.5 Up to four regional workshops for practitioners to compare PR/GA methods and strategies held</p> <p>2.6 Guidelines for PR/GA methods and organizational strategies published</p> <p>3.1 Research results and guidelines comparing new options for organizational innovation for different types of technologies and different management scales are published.</p> <p>3.2 Three case studies of organizational change for improving the effective participation of different stake holders are completed and synthesized.</p> <p>3.3 New local networks for collective resource monitoring and action are formed.</p> <p>3.4 Farmer representation in research decision-making fora increased.</p> <p>3.5 Training of trainers and research partners conducted for new NRM research partnerships.</p>



<p>4. Effective methods for involving gender differentiated and other direct and indirect stakeholders in NRM developed</p>	<p>4.1 A comparison of the costs and benefits to technology design and adoption of different levels of participation and the inclusion of different types of users across types of NRM and scales of management is compiled and published as a working paper.</p> <p>4.2 Guidelines for the involvement of different users in different types of NRM and scales of management are published.</p>
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## Program Evaluation

Table 3. Gender Working Group Outputs and Indicators

OUTPUTS	INDICATORS
<p>1. Effective methods and capacity developed for using gender analysis and involving direct and indirect stakeholders in PB and NRM</p> <p>2. The costs and benefits of including PB and NRM assessed.</p>	<p>1.1 Guidelines are published on the use of gender analysis and the effective inclusion of different types of users in PB and NRM technology development</p> <p>1.2 Gender analysis and guidelines for inclusion of different types of users are included in published PB and NRM participatory guidelines</p> <p>1.3 A synthesis and case studies on the effectiveness of gender analysis and methods for including different users across technology development in PB and NRM is published</p> <p>2.1 A comparison of cost benefit ratios for adoption of PB and NRM technologies by including different types of users completed and disseminated.</p> <p>2.2 A comparison of cost benefit ratios for targeting particular types of users for PB or NRM technologies are completed and disseminated.</p> <p>2.3 Guidelines on the costs and benefits of including gender analysis and different types of users in participatory PB and NRM technology development are included in the published PB and NRM guidelines.</p>

## FUTURE PLANS

### *International Seminar*

In April 1998 the Program will hold an international seminar on "Assessing the Impact of Participatory Research and Gender Analysis on Technology Development and Adoption: Concepts, Methods and Research Design Issues" The objective of this seminar is to provide the participants in the Program with access to relevant expertise in IA and exposure to different IA approaches to which they themselves are using or wish to try out in their own work.

The seminar will be followed by a planning meeting of each working group, in which members will revise and update program workplans, integrating into these concepts, methods and research designs

discussed in the previous seminar. Preparation for this seminar will include expert consultations, email conferencing and commissioning of papers on key areas of IA . Follow-up to this seminar will involve case studies specifically concerned with documenting the impact of participatory approaches and gender analysis, and a second seminar 18 months later to report on the results of impact assessment in progress.

## **INFORMATION DISSEMINATION**

One of the main benefits of a Systemwide Program is to enable participants to achieve efficiencies in research that could not be obtained by working alone. Effective information exchange is vital and is therefore central to the program's work.

- **PRGA postmaster listserv:** connects all members for news, conference announcements, recruitment, program coordination.
- **Working group listservs:** for a for email conferencing with a focus on synthesis into rapid output (e.g. PBG guidelines)
- **Home page:** in preparation for start-up in January 1998.
- **Networking with other relevant email listservs** – a service to working group members to get information about their work widely circulated.
- **Publications** – targeted at specific audiences, utilising academic, and popular press media, printed and electronic.
- **Workshops and seminars.** Organised by program coordination to disseminate program results to client institutions in various fora
- **Inventories of work-in-progress:** to be accessible in data-base format via the home page, will serve as directories of contacts in the field, including interested donors.

An assistant coordinator was contracted in October 1997 with a major responsibility for designing and managing the Program's information strategy, donor relations, seminars and workshops, and small grant programs.

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<sup>i</sup> Particular attention is paid to including also methods which differentiate users according to variables other than gender and comparing them with gender analysis.

<sup>ii</sup> The GWG starts with the presumption that while gender analysis may be increasingly used to identify relevant users, participatory research--often conducted at a community level--frequently fails to identify and address the constraints to inclusion of women and other less dominant members of the community. This is particularly relevant in natural resource management which operates at a community level.

## B. TRAINING

As outlined in the project strategy above, capacity building is carried out as an integral part of the project's methodology development and assessment, and is reported in the preceding sections.

Tabla 1. Eventos de capacitación y seguimiento sobre la Metodología CIAL para crear "Focus-sites"  
Julio 1995-Julio 1997.

Fecha	País	Lugar	No. de Participantes	No. de organizaciones	Seguimiento fechas
Febrero 6-24/96	Honduras	Tegucigalpa	19	15	Ene. 2-8/96 Ago. 18-24/96 Nov. 10-16/96 Abr. 17-23/97
Abril 15-26/96	Colombia	Cali	35	15	Sept. 30-Oct. 3/96 Dic. 12/96 Feb. 18-19/97 May. 29-30/97
Mayo 9-24/96	Ecuador	Quito	25	17	Oct./96 Feb. 25-Mar. 4/97
Julio 1-11/96	Nicaragua	Managua	17	10	Nov. 1-4/96 Mar. 31-Abr. 3/97
Agosto 22 a Sept. 2/96	Bolivia	Cochabamba	18	8	Oct. 28-Nov. 4/96 Jun. 22-28/97
Marzo 4-10/96	Brasil	Cruz das Almas	35	12	Oct. 25-Nov. 2/95 Ene. 3-10/97
Abril 7-16/97	El Salvador	San Salvador	17	8	Julio 22-26/97
Mayo 27-30/97	Brasil	Santa Catarina	11	1	
Mayo 5-15/97	Ecuador	Quito	16	9	
Mayo 17-30/97	Brasil	Frei-Páulo	24	5	
<b>Total</b>			<b>217</b>	<b>100</b>	

## C. PUBLICATIONS

### *Refereed Journals and Book Chapters*

- Ashby, Jacqueline A., Edwin B. Knapp and Helle M. Ravnborg. 1997 "Involving Local Organisations in Watershed Management." Chapter for: *Encouraging Innovation, Increasing Productivity and Conserving the Resource Base* edited by Ernest Lutz, Hans Binswanger, Peter Hazell and Alex McCalla.
- Ashby, Jacqueline A. 1997. "Ethics and equity in participatory research with farmers and rural communities" in Proceedings of the CGIAR Genetic Resources Policy Committee Workshop on *Ethical and Equity Issues in the Conservation and Use of Genetic Resources for Sustainable Food Security-- Developing Guidelines for the CGIAR*. IPGRI, Rome
- Sperling, Louise, Jacqueline A. Ashby. 1997. (In press) "Moving Participatory Plant Breeding Forward: the Next Steps". In: M. Collinson, ed., *The History of Farming Systems Research*.
- Sperling, Louise, 1997. AGREN Network Paper no.75. London: Overseas Development Institute. "The effects of the Rwandan war on crop production and varietal diversity:a comparison of two crops" In L. Sperling ed. *War and Crop Diversity*.
- Sperling, Louise and Jacqueline A. Ashby. 1997. " Participatory plant breeding: emerging models and future development." In: R. Tripp, ed., *New Seeds and Old Laws*. London: Intermediate Technology Publications.
- Sperling, Louise. 1997. "Lessons from assessing varietal erosion in the Rwandan civil war" *Diversity* 13 (1):36-39.
- Systemwide Program, 1997. "A Global Programme on Participatory Reserach and Gender Analysis for Technology Development and Organisation Innovation." *AGREN Network Paper No. 72*. London: ODI, Agricultural Research and Extension Network. Reported by L. Sperling and D. Carney.
- Systemwide Program, 1997. "New Frontiers in Participatory Research and Gender Analysis" Proceedings of the International Seminar held at CIAT, Palmira, Sept 9-14, 1996. 280 pp.
- ✂ Sperling, L. and Jacqueline A. Ashby. 1997. "Methodological Challenges for Institutionalizing Participatory Research and Development." In: *New Frontiers in Participatory Research and Gender Analysis*. pp. 101-108
- Ashby, Jacqueline A. 1997. "What Do We Mean by Participatory Research in Agriculture?" in "New Frontiers in Participatory Research and Gender Analysis" Proceedings of the International Seminar on Participatory Research and Gender Analysis for Technology. CIAT, September 9-14 1996. pp. 15-22.
- ✂ Ravnborg, H.M., Jacqueline A. Ashby, Maria del Pilar Guerrero and Jorge E. Rubiano. 1996. "Burning in hillsides farming. Experiments with a stakeholder approach for conflict resolution." *ILEIA Newsletter*, April 1996 Vol. 12 No. 1. pp 14-15.
- ✂ Ashby, J.A; Beltrán, J. A; Guerrero, M. P. and Ramos, H.F. 1996. "Improving the Acceptability to Farmers of soil Conservation Practices." *Journal of Soil and Water Conservation*. July-August 1996, Volume 51, Number 4.

- OK Jacobsen, V.; Ashby, J. A. and Scobie, G. M. 1996. "Rules and Resources: Institutional Change for Natural Resource Management." SER Consulting, Hamilton, New Zealand. University of Waikato, Hamilton, Zealand, Centro Internacional de Agricultural Tropical, CIAT, Cali, Colombia.
- OK Ashby, J. A. and Sperling, L. "Institutionalizing Participatory, Client-Driven Research and Technology Development in Agriculture." *Development and Change* Vol. 26 (1995), 753-770. Institute of Social Studies 1995, Oxford, United Kingdom.
- OK Quirós, C.A.; Gracia, T.; and Ashby, J. A. 1995. "Avaliação de Tecnologia com Produtores: A Avaliação Aberta". Unidade de Instrução No.1.
- OK Roa, J.I; Ashby, J. A.; Gracia, T.; Guerrero, M. P. y Quirós, C.A. "Investigación Participativa en la Producción de Semilla Mejorada por Pequeños Agricultores". El Caso de ASORTOP, Pescador, Cauca, Colombia. Taller Centroamericano sobre desarrollo de Sistemas de Pequeñas Empresas de Semillas-PES. Guatemala, Abril 21- 26 de 1991.
- OK Van Herpen, D. and Ashby, J. A., Editors. "Gender analysis in Agricultural Research." CIAT Workshop June 13-14, 1991.
- OK Van Herpen, D. and Ashby, J. A., Editors. 1991. "Análisis de Género en la Agricultura". CIAT, Palmira, Colombia. 13-14 de Junio 1991.
- OK Ashby, J.A. 1987. "The Effects of Different Types of Farmer Participation on the Management of On-farm Trials." *Agricultural administration & Extension* 25. Elsevier Applied Science Publishers Ltd, England.
- OK Ashby, J.A. 1986. "Methodology for the Participation of Small Farmers in the Design of On-Farm Trials." *Agricultural Administration* 22. Elsevier Applied Science Publishers, Ltd, England.

*Workshops and Conference Papers*

- OK Knapp, E.B., Ashby, J.A., Ravnborg, H.M., and Bell, W.C. 1997. "A Landscape that Unites: Community-led Management of Andean Watershed Resources." Invited paper for "Global Challenges for Ecosystem Management on a Watershed Context", a conference on the Soil and Water Conservation Society, Toronto, Ontario, Canada. 22-26 July, 1997.
- OK Sperling, Louise. SADC/ICRISAT Regional Workshop on Farmer Participatory Research Approaches, July 1997: 3 papers delivered:
  - OK Participatory Plant Breeding in Rwanda
  - OK What Do We Mean by Participatory Research (senior author, J.Ashby) ( significantly modified version of Ashby, 1996)
  - OK Overview of Systemwide Program on Participatory Research and Gender Analysis
- OK FAO Expert Consultation on base-broadening, September 1997. paper delivered:
  - OK Client-oriented concepts integral to Participatory Plant Breeding, Base Broadening and Other Genetic Enhancement Initiatives.

## **D. LISTADO DEL MATERIAL DE CAPACITACION IPRA DEL CIAT**

**Noviembre de 1997**

### **Unidades instruccionales / Instructional units**

- o Ashby, J.A. 1990. "Evaluating Technology with Farmers. A Handbook". CIAT, Colombia.
- o Quirós, Carlos A; Gracia, Teresa and Ashby, Jacqueline. 1991. "Farmer Evaluations of Technology: Methodology for Open-ended Evaluation. Instructional Unit No. 1." CIAT, Colombia.
- o Ashby, Jacqueline; 1992. "Evaluer des technologies avec les paysants. Un manuel". CIAT, Colombia.
- o Ashby, Jacqueline ; 1993. "Manual para la evaluación de tecnología con productores". CIAT, Colombia.
- o Quirós, Carlos A; Gracia, Teresa, Ashby, J.A. 1993. "Evaluaciones de Tecnología con Productores: Metodología para la Evaluación Abierta. Unidad Instruccional No. 1". CIAT, Colombia.
- o Ashby, J. A.; 1994. "Manual para a Avaliação de Tecnologia com produtores". CIAT, Colombia.
- o Guerrero, M. P.; Ashby, J.A. y Gracia, T. 1996. "Evaluación de Tecnología con Productores: Ordenamiento de Preferencias. Unidad Instruccional No.2 ". CIAT, Colombia.
- o Guerrero, M.P; Ashby, J.A. Gracia, T. 1996. "Farmer evaluations of Technology: Preference Ranking. Instructional Unit no. 2." CIAT, Colombia.
- o Guerrero, M. P.; Ashby, J.A. y Gracia, T. 1996. "Avaliação de Tecnologia com agricultores: Classificação de Preferências. Unidade de Instrução No. 2". CIAT, Colombia.

### **Cartillas / Handbooks**

- o IPRA, CIAT. 1993. El Ensayo. Cartilla No.1.
- o IPRA CIAT. 1993. Los Comités de Investigación Agrícola Local-CIAL. Cartilla No.2.
- o IPRA, CIAT. 1993. El Diagnóstico. Cartilla No.3.
- o IPRA, CIAT. 1993. El Objetivo del Ensayo. Cartilla No.4.
- o IPRA, CIAT. 1993. La Planeación del Ensayo. Cartilla No.5.
- o IPRA, CIAT. 1993. La Evaluación del Ensayo. Cartilla No.6
- o IPRA, CIAT. 1993. Cosas que pueden pasar...Cartilla No.7.
- o IPRA, CIAT. 1993. Compartimos los Resultados de nuestro Ensayo. Cartilla No.8.

- ✧ IPRA, CIAT. 1993. Un Caso Real.. Cartilla No.9
- ◊ IPRA,CIAT. 1993. EL Diario del Ensayo.
- ◊ IPRA,CIAT. 1996. Las Experiencias también cuentan. Cartilla No.10
- ◊ IPRA, CIAT. 1996. Las Cuentas Claras. Cartilla 11
- ◊ IPRA,CIAT. 1996. Es Bueno Saber a Tiempo si Vamos Bien. Cartilla 12
- ◊ IPRA,CIAT. 1996. Guías para Conocer Nuestro Camino. Cartilla 13

#### **Forthcoming**

- ◊ Módulos de Capacitación en Investigación Participativa Nos. 1 y 2.
- IPRA, CIAT. The Trial. Handbook 1
- IPRA,CIAT. The Local Agricultural Research Committees. Handbook 2
- IPRA, CIAT. The Diagnosis. Handbook 3
- IPRA, CIAT. Planning the Trial. Handbook 4
- IPRA, CIAT. Designing the Trial. Handbook 5
- IPRA,CIAT. Evaluating the Trial. Handbook 6
- IPRA,CIAT. Things that can Happen. Handbook 7
- IPRA,CIAT. Feedback to the Community. Handbook 8
- IPRA,CIAT. Actual Cases. Handbook 9
- IPRA,CIAT. Trial Record Book
- IPRA,CIAT. Experiences Also Count. Handbook 10
- IPRA,CIAT. Clear Accounts. Handbook 11
- IPRA,CIAT. It's Good to Know in Time how We are Doing. Handbook 12
- IPRA, CIAT. Guidelines to Help us Along the Way. Handbook 13
- IPRA, CIAT. O Ensaio. Cartilha 1
- IPRA CIAT. Os Comites de Pesquisa Agricola Local. Cartilha 2
- IPRA CIAT. O Diagnóstico. Cartilha 3
- IPRA CIAT. O Objetivo do Ensaio. Cartilha 4



- o IPRA CIAT. O Planejamento do Ensaio. Cartilha 5
- IPRA CIAT. A Avaliação do Ensaio. Cartilha 6
- IPRA CIAT. Coisas que Podem Ocorrer. Cartilha 7
- IPRA CIAT. Compartilhamos os Resultados de Nossos Ensaios. Cartilha 8
- IPRA CIAT. Um Caso Real. Cartilha 9
- IPRA CIAT. Experiências Também Contam. Cartilha 10
- IPRA CIAT. Passando as Contas a Limpo. Cartilha 11
- IPRA CIAT. É Bom Saber a Tempo se Vamos Bem. Cartilha 12
- IPRA CIAT. Guias para Conhecer Nosso Caminho. Cartilha 13

