

Participatory methods and the co-production of agricultural advisory services. Results from four case studies in Bolivia and Colombia

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Summary

This Working Paper reports on a study carried out in 2010-2011 to document, analyze and compare four cases of the implementation of two participatory methods (the SEP and CIAL methods) to improve the inclusion and relevance of agricultural research and extension for the poor. Use the methods was analyzed as a process of co-production in which farmers, NGOs and the public sector share the costs of agricultural advisory service provision. The analysis assesses to what extent participatory methods provide protocols that facilitate co-production. In all cases, the participatory method helped to create pre-conditions for co-production by catalyzing power-sharing and the development of new rights and responsibilities in the performance of co-produced agricultural advisory services. In several respects the utility to the poor of technology and extension services improved. But the absence of external support from powerful decision-making bodies with control over important resources restricted the benefits poorly organized farmers could obtain from co-production of these services, even when public policy in support of their participation was in place. While use of SEP or CIAL cannot overcome the structural power inequalities that lead research and extension to neglect poor farmers' needs, the methods undoubtedly trigger a process in which farmers become more assertive about what they want and less accepting of bad quality agricultural advisory services, poorly oriented training, inappropriate technologies, untested recommendations and unmet election promises.

Preface

The Andean Change Program (in Spanish Alianza Cambio Andino) is a regional alliance of agricultural research and development organizations based in Bolivia, Colombia, Ecuador, and Peru. The Program worked in these countries from 2007-11 with support from the United Kingdom's Department of International Development (DFID). The Program's goal was to consolidate more than twenty years of experience in the Andean region with the use of participatory methods for agricultural innovation that benefits poor farmers. The Program's members validated a set of participatory methods, monitored their implementation and results and engaged in policy incidence to promote understanding and use of participatory methods.

The objectives of the Program were to:

- Improve the capacity of national agricultural research systems to identify and respond effectively to demands for agricultural innovation, expressed by poor communities, farmers' organizations, and local governments
- Promote collective learning and knowledge sharing in the Andean region, in relation to the use of participatory methods in pro-poor agricultural innovation
- Influence policy formulation and implementation related to the use of participatory approaches, through the use of arguments and evidence

The Andean Change Program was coordinated by two international centers affiliated with the Consultative Group on International Agricultural Research (CGIAR): the Tropical Agricultural Research Center (CIAT: www.ciat.cgiar.org) and the International Potato Center (CIP: www.cipotato.org).

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Participatory methods and the co-production of agricultural advisory services. Results from four case studies in Bolivia and Colombia

1. INTRODUCTION

1.1. Objectives

This Working Paper reports on a study carried out in 2010-2011 to document, analyze and compare experiences with the implementation of two participatory methods and their results in four cases. In each case the participatory methodology was implemented by a rural development agency in a program or project which aimed to deliver benefits to poor farmers from an agricultural innovation process involving improvement in the provision of technologies and technical assistance. The methodology was taught to field staff by experienced trainers and the implementation was monitored and evaluated using an impact pathway and periodic qualitative and quantitative data collection.

The objectives of this study were to:

- a) Compare current results across four cases of the implementation of participatory methods and compare these with the outcomes predicted by theory
- b) Understand aspects of institutional change attributable to a method and the factors that contributed or hindered progress in this respect
- c) Assess whether the method contributed to improvements in service provision and if this included benefits for more poor farmers

In Chapter Two we present the theory of change that is the basis for this comparison of expected and current results across the four case studies. Our cases involve two different participatory methods – a version of participatory monitoring and evaluation called the SEP methodology, and a methodology for participatory technology development called the CIAL methodology. The theoretical framework of co-production is explained. That enables us to compare two innovation processes that involve quite different methodological procedures but share a common purpose – that of improving service provision for poor farmers. Chapter Three provides a discussion of the participatory methodologies implemented in the case studies and Chapter Four presents the study

framework and the sources of information consulted to write the cases. Chapter Four to Seven each present a case study. Chapter Eight is a discussion comparing the cases with respect to:

1. Fidelity of implementation of the methodology
2. Results in relation to institutionalization
3. Results in relation to innovation
4. Results in relation to the relevance and reach or inclusiveness of service provision
5. Validity of the theory of change
6. Factors that have influenced implementation and results
7. Lessons for improving future applications of the methods

1.2. The co-production of agricultural advisory services

Common goals of the SEP and CIAL applications

This paper employs comparative analysis across the four cases to address the question of what role participatory methods can play in improving the provision of agricultural advisory services to promote innovation that benefits small holders in poor countries. Although each participatory methodology included in the four Case Studies has its own theory of change based on very specific steps in its participatory process, for the purposes of comparison across different methods it is necessary to situate common elements in a meta-theory of change that lays out how the methods are expected to contribute to a common end-goal: that of making agricultural innovation work better for the poor. The SEP and CIAL methods were applied in all four cases with the end- goal of improving the inclusion of poor producers in the agricultural innovation process to which the method was introduced, by improving the relevance of agricultural technology and the accessibility of agricultural advisory services to poor producers. Effective agricultural advisory services are essential for the inclusion of the poor in agricultural innovation. The term “agricultural advisory services” refers to provision of a comprehensive set of goods and services that involves communication about new technologies, access to inputs, training, linkages to markets, adaptive research, technical advice, marketing and business development services (Birner et al., 2009).

In addition to sharing the end-goal of augmenting inclusion by making agricultural innovations more relevant to poor producers, both methods were implemented in innovation processes where there was an expectation that farmers would contribute resources to making the innovation process effective. For example, farmers were expected to contribute to implementing planned knowledge-sharing, capacity development, technology adaptation and dissemination

activities. This contribution was not just a passive one of being present at a meeting because these participatory methods involve a degree of power-sharing, delegation of responsibility and cost-sharing for farmers taking part in their activities. In other words, these participatory methods are used to engage farmers as co-producers of agricultural advisory services.

Co-production has been defined as a process in which citizens participate with public officials in the provision of a public good or service that is more valuable or effective than either party can produce on their own (Ostrom, 1996). The goal of co-production is a common aspect of the use of participatory methods in these four cases and is the basis for our central hypothesis: that participatory methods provide useful protocols that help normalize co-production relationships, relieving co-producers of the need to invent trial and negotiate ways of working together to achieve co-production.

There are three additional common aspects of the four cases other than their goal of inclusion and co-production. First, SEP and CIAL methods were applied in innovation processes that specifically aimed to develop agricultural technologies that are appropriate for poor Andean farmers. Second, SEP and CIAL methods were expected to stimulate institutional innovation: organizations using one or other method were expected to incorporate the method into their internal policies and routine way of doing business. And third, both SEP and CIAL methods were applied to agricultural innovation processes with the expectation that this would improve the quality of communication between poor farmers and field staff providing technical assistance.

Co-production as a feature of the SEP and CIAL applications

Until the 1990s it was an axiom of development strategy that the development and provision of agricultural technologies and advisory services for poor farmers was the responsibility of the public sector. Since that time however, the role of the state in the provision of public goods and services has been hotly debated. The neo-liberal position that the role of the state should be reduced (for example, in education, health, research, agricultural extension and transport to name only a few service areas) has dominated this debate for more than two decades. Different roles have been defined for the state that range from direct provision to the back-seat role of facilitating linkages between demand from farmers and supply by non-government providers. Experimentation with institutional arrangements is widespread but the results are diverse and by no means conclusive.

Among many alternative institutional arrangements is the arrangement in which public goods or services are co-produced (North, 2005; Ostrom & Ostrom, 1977; Ostrom, 1996; Ostrom 2005).

Growth in the scope and nature of citizen participation in social arenas such as (micro)finance normally considered the exclusive domain of private or public sector providers (i.e. banks) has demonstrated the potential of co-production to deliver services to the poor. In an analysis of several case studies Ostrom (1996:1083) concluded that co-production of many goods and services normally considered to be public goods “is crucial for achieving higher levels of welfare in developing countries, particularly for those who are poor.”

Ostrom (1996) identified an important condition that must be met for a co-production process to succeed, termed complementarity. This means that cooperation by public officials and citizen-producers must occur in situations where their inputs are complementary (that is, each makes a unique contribution that the other co-producer cannot substitute for). The combination of their inputs should be synergistic and so provides a more useful service than either party can produce working alone. To justify the effort of co-production, their technologies or rules in use must generate a complementary production possibility frontier rather than a merely substitutive one. If the inputs offered by citizen-producers are completely substitutable for the inputs offered by public officials, then no advantage exists to finding ways of co-producing a good using both sources of input.

This leads to the question of whether a participatory method assists a co-production process by helping potential co-producers understand and articulate their potential complementarity of inputs, if indeed complementarity exists. One example is bringing complementary indigenous or farmer knowledge together with western, scientific knowledge to create novel technologies suitable for the poor, widely acknowledged as one of the important benefits of using participatory methods. Both SEP and CIAL methods are expected to catalyze this type of complementarity among different kinds of knowledge.

Evans (1996:1121) defined another requirement for co-production drawn from new institutional economics termed ‘embeddedness’. According to this concept, complementarity is not just about the public sector providing those inputs it does best and leaving citizens to do the rest. Evans used the concept of embeddedness to refer to the development of roles, rules and responsibilities that enable co-producers to build effective partnerships, work ‘on the same page’ together and realize the potential for mutual gain from complementarities. Embeddedness can be seen as analogous to both “bridging” and “linking” social capital. Linking social capital refers

specifically to connections with people and institutions in positions of power while bridging social capital refers to connections to people who are not in your network of family and friends (Woolcock, 2001). Co-production depends on both kinds of social capital for building cooperation among co-producers who come from different social arenas and interact through hierarchical power relationships, as do farmers and professional extension agents.

The concept of embeddedness raises the question of whether application of a participatory method helps to improve the development of new roles, practices and responsibilities that make successful co-production more likely? Embeddedness requires a shift in the balance of power away from normal professional relations in the provision of agricultural advisory services. These conventions put farmers in the role of “patients” who receive technical “prescriptions” and professional field staff in the role of “doctors” who hand out received wisdom to farmers (Chambers, 1997). Embeddedness involving the development of less hierarchical relationships is a prerequisite for farmers and professionals to develop complementarity when farmers have profound knowledge about local conditions that needs to be taken into account when innovations are made. Unless technical field staff is trained to facilitate farmer participation and to listen rather than lecture, they will seldom ever learn about farmers’ knowledge. Improvement in farmers’ linking social capital (a feature of embeddedness) is expected from their participation in SEP and CIAL implementation, while improvement is expected in the bridging social capital of operational field staff.

Improvements in social capital (specifically, norms of trust and reciprocity) in the farmer-extension staff relationship are expected to occur when and if a participatory method helps to structure a shift in power relations so that the less powerful gain power and the more powerful cede power. For example, SEP requires professional extension field staff to cede power and agree to have their performance evaluated by farmers. They also have to agree to improve their performance in response to corrective feedback from farmers. The participatory evaluation in SEP involves a shift in the balance of power, as farmers develop a new role and new responsibilities as the arbiters of acceptable performance by professionals who previously were not accountable to them. The CIAL method structures the shift in power relations quite differently but a change in the balance of power is central to the success of the method. For example, the CIAL method only succeeds if the professional field technician facilitating the CIAL gives up his or her customary role as the “doctor” or teacher who prescribes what technology farmers should use. Instead, field technicians cede power to farmers over decisions like what technology options to test, how to design trials, the standards of acceptability to apply in evaluating technology and what to

recommend to other farmers. When the CIAL method is used, some of these decisions are made by consensus or by farmers using their own judgment based on local knowledge. As a result CIAL experiments can lead to the development of a blended or co-produced technology that is the result of subjecting the best options on offer from scientific research to local selection pressure based on farmers' knowledge. Experience shows this blended or co-produced technology usually performs better than the alternatives farmers or researchers are able to identify working on their own. Pritchett and Woolcock (2002) summarize the advantages of this participatory model of service provision as bringing more local knowledge and commitment to the service, resulting in its greater relevance and sustainability while appropriately structured participation can ensure that professional skills such as those involved in "technical assistance" actually achieve goals chosen by the beneficiaries.

In sum, in our cases the participatory methods are a way of systematically developing or improving complementarity and embeddedness in a co-production initiative involving citizens (farmers) and professionals in the provision of public goods and services, specifically appropriate technologies and agricultural advisory services. The use of co-production is in part a product of the downgrading of the role of the state in the Andean region and the entry of NGOs as a third party in the provision of agricultural advisory services, since the 1990s. NGOs and the state have entered into a co-production relationship that Pritchett and Woolcock (2002) define as the "single sector participatory" approach to service provision. One arrangement is where the state takes the role of an intermediary and NGOs do direct service provision: for example, in our Bolivian cases government co-finances agricultural advisory services with an NGO that directly mobilizes voluntary contributions from farmers who act as volunteer "promoters" or field extension agents. Our CIAL case exemplifies a different arrangement where the NGO takes the role of a facilitator and trains government extension agents who directly provide farmers with technical assistance and free or subsidized inputs like seed or fertilizer. Farmers absorb significant costs such as conducting farm trials, holding field days or supporting seed banks for *in situ* conservation that local government is too weak or impoverished to provide. The remainder of this chapter discusses what kinds of results are expected from these three-way co-production relationships among public officials, NGOs and private citizen co-producers.

1.3. Expected results of participation and co-production

The previous section argued that participatory methods used in the provision of agricultural advisory services can be understood as an institutional innovation that facilitates the co-production of public or semi-public goods and services. For example, performance of any of the

following services depends on inputs from farmers and from public sector or NGO officials acting facilitators, regulators or direct providers in these relationships:

- Participatory plant breeding methods systematize the co-production by breeders and farmers of improved plant varieties that farmers often multiply and disseminate among themselves.
- Participatory technology development methods provide farmers and field extension agents with protocols for on-farm technology testing and validation carried out by farmers who make recommendations to their neighbors.
- Farmer field schools use participatory learning supported by a professional facilitator to co-produce knowledge about ecological principles with groups of volunteer farmers.
- Participatory monitoring and evaluation in development projects has a role in co-production when citizens take responsibility for ensuring transparency and accountability in the provision of agricultural advisory services.

1.4. Expected results of implementing the participatory methods

In this section we examine the separate impact pathway diagrams designed for the SEP and CIAL methods and then combine these into a single impact pathway incorporating the key aspects of their contribution to co- production discussed above. An impact pathway is a way of visualizing and describing progress towards a desired final impact that proceeds successively from the intervention to:

- Its more immediate, short-term results or products (conventionally in 1-2 years)
- The outcomes of putting these products into use in the mid-term (conventionally in 3-5 years)
- The impacts produced from these outcomes over the longer term (conventionally 5-10 years)

In the four cases studied the implementation was not more than five years old when the case study was conducted so we cannot detect or discuss long-term impacts beyond this time frame.

(a) SEP impact pathways

SEP is a form of beneficiary monitoring and evaluation designed for use by farmer groups that can facilitate the co-production of knowledge and involves the joint provision of an M&E service. In our cases, SEP is conducted by groups of volunteer farmers to evaluate a program or project and helps to improve the quality of its services by providing corrective feedback from farmers about the

performance of field extension staff. SEP can thereby also improve coverage and inclusiveness. Both methods enable farmers to evaluate the appropriateness and utility of new technologies to their local farming conditions so they can improve the relevance of extension services.

The expected products of implementing the SEP method are defined as:

- The formation of local farmer groups and/or volunteer farmer promoters or paraprofessionals with the knowledge to implement the PM&E process
- A monitoring system is up and running

The outcomes are defined as:

- Local customs and knowledge about evaluation has been incorporated into the SEP system
- The information generated by monitoring is used for providing corrective feedback
- The evaluation feedback is taken into account and used to change behavior
- The SEP is normalized as a “way of doing business” by the participant farmers and the agency conducting SEP
- The agency has taken SEP on board as a regular feature of its conduct

In addition two expected outputs refer to improvement in the social capital:

- The beneficiaries of the project or program using SEP have improved their managerial capability
- Local leaders involved in SEP have consolidated their positions in their communities
- Beneficiaries are using SEP in additional social arenas

The expected impacts from these outcomes are:

- Improvement in the success of the innovation process where SEP was applied
- Improvements in the success of other innovation processes to which SEP was extended
- Improvement in the welfare of farmers

(b) CIAL impact pathways

The CIAL methodology enables a group of farmers to provide a technology testing service and develop recommendations for their locale. The farmers are volunteers elected by their community and they provide land, labor and other inputs as well as their knowledge of local farming conditions to trial new technologies proposed by other farmers or by extension. This

involves co-production of knowledge and of on-farm testing and extension services. Farmers draw conclusions from evaluating alternative technologies and hold a community meeting after harvesting trials. The CIAL improves the quality of extension because it enables extension to develop locally adapted recommendations. It also can improve the coverage and inclusiveness of extension because more farmers can be attended by a single extension agent.

The products of using the CIAL method are expected to be:

- Research centers generate policies that permit researchers to decentralize the testing of technology together with farmer research committees
- Researchers use the CIAL methodology to evaluate technology with producers
- Professional field staff understand how to apply the CIAL method

The outcomes are defined as:

- Technology co-developed between producers and researchers in representative, smallholder conditions improves productivity and profitability
- Innovation processes include a two-way flow of information between producers and researchers and include farmers' criteria for acceptability of technology in its design
- Innovation processes incorporate and delegate responsibilities to producers who assume a role as local researchers for the generation of technology adapted to their growing conditions

The expected impacts of the CIAL method are:

- More appropriate technology available
- Higher coverage of the diversity of agro ecological conditions of small producers and high efficiency in terms of costs of adaptive research services
- A higher proportion of small producers innovate, adapting and adopting improved and appropriate technology, so improving their incomes

(c) Expected results in the framework of co-production

The impact pathway for comparison of the four case studies is designed to assess the extent to which participatory methods lead to the expected results in the framework of the theory of co-production. For the purpose of comparison across cases, results of using the SEP and CIAL methods are organized as follows:

1. Preconditions for co-production that create the possibility for a change in power relations: these are short-term products of using the methods and under the control of the implementers

- farmers' self-esteem increases
- farmers' capacity for collective action increases
- trust and mutual respect among actors increase in ways that allow power sharing

The preconditions for role changes involving power-sharing, and the development of new rights and responsibilities in the performance of co-produced agricultural advisory services require service providers and farmers to develop mutual respect. For this to happen with SEP or CIAL methods, poor farmers need to develop their self esteem. This is needed for SEP since farmers have to be assertive and to give verbal, face-to-face feedback that may be critical to people of higher social status who have power over desirable resources. Once they are familiar with the CIAL process, farmers have to develop the self-confidence to make decisions on their own without waiting for the extension agent to tell them what to do.

Assertiveness and self-esteem have to develop as personal qualities but for the SEP method, these qualities need to be expressed collectively as evaluations are done by groups of farmers immediately after an activity and then conveyed by the group to the extension staff. Thus strengthened capacity to organize collective action and negotiate are essential preconditions for role changes to occur since farmer groups need to negotiate with professionals about how these will respond to corrective feedback. In the CIAL method, self-esteem is needed for farmers to learn to work together as a team on their own and that their decisions in the technology evaluations are what count. Capacity to organize must develop so the CIAL members can plan the trials, share responsibilities in implementation and report back to the wider community. This is the foundation of small enterprise skills that the group needs to have developed when time comes to sell excess produce and especially their seed. Only with self-esteem, capacity for organized collective action and mutual respect can the role reversal required take place: with the extension agent facilitating instead of prescribing; and the CIAL farmers leading the development of technical recommendations instead of being passive recipients of advice.

2. Embeddedness: norms, roles and practices change and are institutionalized in ways that demonstrate power sharing among actors. Power-sharing and changed roles are intermediate outcomes of using the methods and depend on the development of farmers' self-esteem and capacity for negotiation as well as mutual respect among actors i.e. the preconditions for co-production. Here we would expect to observe that the SEP or CIAL method has become

embedded or “institutionalized” and is used as a normal way of doing business in the performance of agricultural advisory services.

3. Co-production: complementary inputs from different actors are combined in one or more of the following ways, if embeddedness or changes in roles and practices occur:

- Blended technology that is a fusion of complementary farmers’ local knowledge and extensionists’ external technical knowledge
- Agricultural advisory service(s) depend on the combination of unique functions performed by beneficiaries and traditional providers. Here we would expect to observe farmers’ exerting control (decision-making responsibility) over the implementation of one or more aspects of service provision that is necessary to improving its benefits for poor farmers.

4. Benefits of co-production:

- Improvement in the quality of service in terms of relevance of technology, training or advice to the end users, some of whom are co-producers
- Increased coverage of the service to include more of the end user population (e.g. poor farmers, women, ethnic minorities) some of whose members are co-producers

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2. THE PARTICIPATORY METHODS

2.1. The SEP methodology for participatory monitoring and evaluation



Photograph 1.
A community leader presents a group's visualization of SEP objectives, Bolivia.

Participatory Monitoring and Evaluation (PM&E) is a generic term that embraces a large number of different approaches and methods that share the principle that the stakeholders and in particular the beneficiaries of an intervention or program actively contribute to its evaluation. The particular approach to PM&E used in these case studies will be referred to throughout as the SEP methodology (Seguimiento y Evaluación Participativa). SEP is designed to be an evaluation carried out by beneficiaries and was developed in Honduras and Colombia, tested in several other Latin America and African countries and subsequently adapted for use in the Andean region.

Purpose

The purpose of SEP is to strengthen farmer organizations, whether small informal groups or large-scale federations. The methodology is designed for use by rural people with low levels of literacy. Even the non-literate can practice SEP by using the evaluation forms which display three to five little faces (in Spanish *caritas*) with different expressions to indicate different levels of approval. These forms are referred to throughout this document as the "Caritas" forms which are the backbone or central tool of SEP. However it is not a requirement to use the Caritas form as there may be a local preference for using different symbols that can be substituted for the little faces.

Photograph 2.
A farmer from North Potosí
counting votes of an
evaluation with the “Caritas”
form, Bolivia.



SEP is designed to enable a group of farmers to establish their own objectives for an evaluation, to plan how to carry out the evaluation including defining their own indicators and milestones for measuring progress and the kind of information they need to obtain about those indicators. SEP can equally well be applied by the leaders of a farmer organization or by managers of a Project or an agency such as a rural development NGO. It has been designed with rural and agricultural activities in mind but can easily be applied to marketing, health, education or any kind of service provision.

Training

SEP requires a facilitator who has had training and some experience in the methodology. The facilitator accompanies the SEP process through one cycle of evaluation. SEP can be taught in a one week workshop then it is necessary to have at least two bimonthly visits by the trainer to observe the facilitator in the field and help solve his or her problems. Visit by the trainer should also devote time to reinforcing the skills of the SEP Committees or teams or promoters.

Participants



Photograph 3.
Indigenous Quechua farmers in
North Potosi during training in SEP.

SEP is carried out with a group that has common interests, is able to define a shared vision or goal for SEP and is capable of forming a SEP Committee or team of volunteers who are prepared to take over the SEP process from the facilitator after the first cycle of evaluation.

Usually the facilitator who has formed a group to carry out SEP is the same field extension agent whom the farmers evaluate in the first cycle of evaluation. The feedback from SEP is given to the facilitator-field agent and to his or her supervisor if there is any conflict over the feedback.

Protocol

When setting up an evaluation using SEP it is necessary to understand the local context in which the methodology will be implemented and especially any local practices for evaluation so that SEP fits into the socio-cultural environment of the participants.

The following steps are usually followed in SEP:

Table 2.1. Steps in the SEP methodology.

Step	Objective
Understand the local context where SEP will be implemented and identify local monitoring and evaluation practices	To make sure that SEP does not contradict local customs and is adapted to existing monitoring and evaluation practices.
Define key terms	Users define terms like “evaluation” with the assistance of the facilitator
Define a shared goal or vision for the group of beneficiaries	To identify an overall goal of the Project or activities to be evaluated. This is often done by visualizing a destination at the end of a road or a journey
Identify indicators of results	To select some indicators or milestones that are expected results the participants think are needed for achieving the goal. This is often done by visualizing some milestones along the road or journey.
Identify activities	To define the key activities that participants expect to contribute to the goal, including their dates and who is involved in these
Design forms	To develop the evaluation forms the participants are going to use to evaluate each activity. Usually this involves using the Caritas form
Formation of a SEP Committee	Once the group has participated in the planning process, identified activities, indicators and designed evaluation forms, a SEP Committee, team or group can be formed to continue the process. The principle of having more than one person is knowledgeable about and involved in SEP is to make sure that there are substitutes if any given person cannot attend an activity. Ideally these people should be elected by their group. The committee members are responsible for facilitating the evaluation process with the selected formats, registering the information and presenting results to the community.
Use the SEP results	The results and conclusions from the Caritas form or other forms used to evaluate activities and indicators are communicated usually immediately after the activity has been completed to provide corrective feedback. This information allows beneficiaries to interact with service providers to adjust or modify the project or its activities in order to ensure better results.

Evaluating the implementation of SEP

The procedures for applying SEP are flexible. The step of establishing a SEP Committee or team in the community is intended to ensure that the responsibility for conducting the evaluation at any given event or activity can be assumed by one or other member of the Committee or group. There is no requirement that more than one trained member of the SEP Committee or team be present at a given evaluation. The essential aspects of implementation are:

- Each step of SEP should involve some of the beneficiaries

- Adapt the process to respect local customs, language and knowledge
- Emphasize that the evaluation is formative (not punitive) and intended to provide corrective feedback
- Evaluation takes place during and is completed immediately after the event or activity being evaluated
- Feedback is given immediately after the event
- Seek consensus in decisions during the SEP process
- Register information systematically

The cases studies were conducted retrospectively. Implementation of the methods was not evaluated formally at the time of implementation but there were visits conducted at least bimonthly to each site by experienced trainers over a period of a year after the first training workshops. The trainers were consulted about their opinion of the outcomes of training and how faithful the application had been in each case. The above criteria were reviewed to assess how faithful the application had been to the method. In the Chaco case for example, the trainers conducted a workshop in which they analyzed the SEP implementation step by step to identify any divergence or difficulty. Their conclusion was that the tools had to be adapted to local language and culture but that the steps in the process had not been changed.

2.2. The CIAL methodology for on-farm adaptive research and extension

The CIAL is a farmer-run research service that is answerable to a local community or a farmers' group or association. The community or association elects a committee of farmers chosen for their interest in research and willingness to serve. The CIAL conducts research on priority topics identified through a diagnostic process, in which members of the host community or association are invited to participate. After each experiment the CIAL reports its results back to the host group.

Purpose

The purpose of the CIAL method is to enable small farmers to better manage the risk of innovation when technologies are not appropriate to their circumstances. The CIAL conducts adaptive research enabling farmers to evaluate new technologies using their own criteria and under their own conditions, and to make recommendations to each other. CIALs often start with food security objectives and if they succeed in producing more food they often move onto experimenting with markets.

Training

Each committee has a small fund to offset the costs and risks of research and is supported by a trained facilitator until it has matured enough to manage the process independently. The trainer is present at and facilitates each of the steps outlined in Table 1.2 for one crop cycle. Training by the facilitator is best done by reading out loud and discussing the 13 CIAL Handbooks and then putting into practice what is learnt. Thereafter the trainer steps back and allows the members to conduct the process themselves. The presence of the facilitator or a trained agronomist is recommended when the CIAL designs its experiments and analyzes the results obtained.

Participants

The CIAL method is designed for use with very poor farmers who have some land to cultivate, are insufficient in food and participate only very marginally in markets. The CIAL requires a trained facilitator who may be another farmer who has participated in a successful CIAL. If the facilitator has not training in agronomic experimentation, then an agronomist needs to participate in the planning and analysis steps of the process. CIALs are not designed to work independently. The most successful applications have had strong ties to experiment stations and researchers who learn from CIALs as well as supplying technologies for experimentation. In addition CIAL are not a substitute for or a method of doing extension. After CIALs develop their recommendations, they need a relationship with extension services to make sure these findings reach other farmers in similar but distant agro ecological conditions and to assist with issues like seed multiplication and sales.

Protocol

The following steps are usually followed to implement the CIAL method:

Table 2.2. Steps in the CIAL methodology.

Step	Objective
Motivation	To create awareness in the host community or farmers' association of what the CIAL is for and how it works and encourage the members to attend a meeting to elect the CIAL
Election	To elect the CIAL committee
Diagnosis	To analyze the causes of problems producers have with their farming and select a topic for an experiment. This may include a study tour to visit other farms, other areas or experiment stations to learn about options
Planning	To work out the question farmers want to answer with an experiment, what treatments should be compared, where to locate replications, and what to evaluate
Experimentation	To carry out the experiment, assigning roles and responsibilities to the committee members
Evaluation	To conduct participatory technology evaluations in the CIAL experiment
Analysis	To draw up some simple summaries of the information generated from the experiment and make some conclusions
Feedback	To report back to the community or association that elected the CIAL on what they have done so far and how they have used the CIAL Fund or other resources

Evaluating the implementation of CIALs

The essential aspects of implementation of the CIALs are:

- The 13 CIAL Handbooks should be read aloud and discussed during training. Members of the CIAL should be thoroughly familiar with their contents
- The facilitator and/or agronomist providing support should delegate each step of the process to the CIAL members after the first crop cycle.
- Election of the CIAL members must involve a discussion of what kinds of farmers are most appropriate for this role
- Feedback is given to the group to which the CIAL is accountable on a regular basis. If this is not done the group privatizes the knowledge it generates.

The case study was conducted retrospectively. Implementation of the method was not evaluated formally at the time of implementation but there were visits conducted at least bimonthly to each trainee by an experienced trainer over a period of one year after the first training workshop. The trainer was consulted about his opinion of the outcomes of training and how faithful the application had been in each case. On field visits by the researchers, the above criteria were reviewed to assess how faithful the application had been to the method.

3. STUDY FRAMEWORK AND SOURCES OF INFORMATION

3.1. Guiding questions for the case studies

Chapter Two presented the theoretical basis for the hypothesis that participatory methods provide useful protocols that help normalize co-production relationships, relieving co-producers of the need to constantly invent, trial and negotiate strategies for working together to achieve embeddedness and complementarity. The starting point for the case study analysis is the argument that: that participatory methods used in the provision of agricultural advisory services can be understood as an institutional innovation that can facilitate the co-production of public or semi-public goods and services. In the provision of agricultural advisory services, one outcome of co-production should be technical recommendations that blend indigenous or farmer knowledge together with western, scientific knowledge. A second outcome should be an improvement in co-performed extension functions where each set of co-producers has decision-making responsibility for their own unique inputs. Chapter One identified two questions which will be examined in each case study and then comparatively across all the cases:

1. Did the SEP or CIAL participatory method assist co-production by helping potential co-producers understand and articulate their potentially complementary knowledge inputs to provide better technical recommendations?
2. Did application of the SEP or CIAL participatory method contribute to the development of complementary roles, practices and responsibilities such that farmers gain decision-making power and take on some extension functions necessary to ensuring that poor farmers get a better service? – e.g. communication of technical recommendations to other farmers, community field days, identification of market linkages or technology validation.

3.2. Study design, information sources and data collection

Case study method

The comparative case study method was selected because the study objective is to understand in different contexts, how and why the participatory methods contributed to innovation processes. These processes took place in very different circumstances and had different objectives but benefit from the implementation of a participatory method that was ensured quality control by *Cambio Andino* and monitored qualitatively by the *Cambio Andino* Impact team in the Bolivian cases, and by the CIAT trainer in the Colombian case. The theoretical framework of co-production provides reasons why we might expect similar outcomes from a participatory method across the

cases even though the differences in context are striking. In all the cases we observe an agricultural advisory service provider use the participatory method with the expectation that the method will improve delivery of extension goods and services. Overall, the evidence created from this type of explanatory comparative study is considered robust and reliable (Yin, 2003; Baxter, 2008).

These are therefore, retrospective, explanatory case studies (Flyvbjerg, 2006). Extension outcomes and impacts are well-known to be difficult to attribute in terms of linking cause and effect (Birner et al., 2009). The main objective of these case studies is not to measure or quantify levels of outcomes or impact but answer questions about the causal links between the implementation of the method and the outcomes observed, in situations that are too complex for rigorous experimental research designs with controls

Criteria for selection of the cases

The cases were selected retrospectively because they were viewed by the Program Executive Committee as key cases for the Program to learn from, using the following criteria:

- The methodology was implemented as a part of the *Cambio Andino* program and therefore a high degree of quality control was assured in terms of the fidelity of the implementation and well as detailed knowledge of how training fed into implementation in the field
- The case represents an opportunity to provide important lessons to the national innovation system
- There is a very high and widespread incidence of rural poverty in the area where the methodology was applied so that generalizations can be made about the relevance of the findings to improving service for poor farmers
- The host service provider (to whom Cambio Andino's training was supplied) had the opportunity to upscale the method by influencing other, local government advisory service providers to use the methods

3.3. Sources of information

Prior to beginning the collection of information, a case-study protocol was prepared that laid out a set of questions in the form of a information table for each case that was to be used for making notes for the case-study report. Sources of data to be triangulated were identified and included existing documentation, Cambio Andino's monitoring and evaluation reports and impact studies when available as well as key informants. After review of these materials a first draft of the

information table was completed by an expert trainer who knew the case intimately and had visited the site repeatedly over the implementation period. In this way gaps in information were identified in relation to the questions in the information table. Reports from visits to the field, recorded testimonies collected for knowledge-sharing purposes, interviews in person and by telephone as appropriate were utilized to fill gaps and cross-check the information in the tables with key informants, including managers from the host service providers, extension staff, volunteer farmer promoters and beneficiaries participating in the implementation. The information table was used as a guide for a semi-structured interview with key informants. Beneficiaries were asked to compare their situations with respect to extension service provision before and after they took part in the implementation. Field visits were conducted between October 2010 and early March 2011 by Vivian Polar, Jacqueline Ashby, Juan Fernandez and Jose Ignacio Roa.

Triangulation with M&E and impact studies

Cambio Andino's monitoring and evaluation (M&E) reports were important sources of information, as were studies comparing baseline and final conditions in the case study sites after completion of the implementation. These reports were consulted for the SEP cases after the initial information table for these cases had been completed. The reports were used to cross-check the consistency of information collated by the researchers with that from M&E. The information built from key informants for the cases and the reports on the M&E about the implementation and associated events were in all three SEP cases highly similar.

The M&E method involved multi-actor workshops; individual and group interviews and the findings were validated with participants in these activities. The baseline and final studies used a survey methodology with a structured questionnaire that collected baseline and ex post information. These questionnaires were administered between 21-25 October, 2008 and then two years later from 23-27 August, 2010. In each case, data were collected on economic and social aspects from a sample of approximately 60-80 households that participated in the intervention (the target group) and from a sample of approximately 15-30 matched households from a similar area distant from the intervention (the control group). The criteria for forming the target group were that they were small producers and members of organizations whose leaders had been trained in SEP by the service provider. The criteria for forming the control group were that they were small producers within the project or program area of the service provider who belonged to producer organizations that had not received any training in SEP. In the CIAL case no control group was defined nor was there M&E or survey research conducted. The target group for

key informant interviews was defined as small producers living in the rural districts selected for the CIAL intervention by the UMATAs (local government extension service) and who had planted seed produced by one or more CIALs. Thus the information obtained in the CIAL case is subject to the potential bias that no information was obtained from farmers who did not benefit from the new seed.

Baseline conditions in the case studies.

The four case studies consist of an analysis of an implementation of a participatory methodology. Each case examines the historical and social context of the implementation, the goals that motivated use of the participatory methodology, and the baseline conditions that existed before implementation in relation to the expected outcomes of the methodology. The baseline in this situation is concerned with what type and level of agricultural advisory services and technology were accessible to farmers before the implementation but especially, the way in which these were being provided, referred to in the case analysis as “the rules in use.” In the three cases where SEP was implemented the baseline for comparison also includes the “rules in use” for conducting monitoring and evaluation without or before SEP.

Fidelity of implementation

An assessment of whether the implementation actually applied the method in question in a way that was faithful to its principles is a precondition for attributing outcomes to the SEP or CIAL methodologies. This was assessed by an expert trainer in the methodology who had taken part in the follow-up post-training for the implementation. Thus it is a subjective judgment with some potential for bias. The trainers consulted had specific indicators they used to monitor and assess whether the trainees were implementing in accordance with essential guiding principles. It was understood and even sought that there could be adjustments in the way the method was applied that would provide opportunities to improve the method. Therefore trainers were looking for and monitoring such adjustments while reinforcing post-training field practice to make sure the expected outcomes were not being jeopardized by fundamental departures from the method in question.

3.4. References

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4. CASE STUDY: CIALS IN VALLE, COLOMBIA



Photograph 1:
Dr Matthew Blair, CIAT Bean Breeder
discusses results with CIAL members.

4.1. Background information

This case involves the implementation of the CIAL methodology in ten municipalities of the Department of Valle de Cauca, Colombia during the period January, 2006-December, 2008.

4.2. Context of the application

4.2.1. Background

The International Center for Tropical Agriculture (CIAT) is an international agricultural research center affiliated with the Consultative Group on International Agricultural research (CGIAR). CIAT developed the CIAL method in the 1990s and disseminated it in Central America, Bolivia, Peru, Ecuador, Venezuela, Brazil, Mexico, Argentina as well as countries in Asia and Africa. Thus CIAT had extensive previous experience with the CIAL method when this application was initiated, including in the same region of Colombia. This experience was documented in a study of 39 CIALs in Cauca department conducted in 2005 (Sandoval et al, 2005) that compared samples of respondents from matched communities with and without CIALs. The study found that farmers in communities with CIALs had a higher frequency of trying out new technologies and in particular new varieties, as illustrated in Table 4.1. This subsequent application of the CIAL methodology in Valle was initiated with the expectation that participation in CIALs would increase the availability of new varieties in poor communities where food security had been identified as a problem. The objective was to select and then disseminate CIAT's new, biofortified varieties of beans to improve food security in the poorer rural areas of the Department.

Table 4.1. Comparison of communities with and without CIALs.

Variable	Community	
	With CIAL	Without CIAL
Sample	147	82
In the past five years have you tried any new varieties? Yes:	39%	23%

¹ * Significant at $P < 0.05$ (Chi square test χ^2). Source Sandoval, et al, 2005

The story of this application began with a visit to CIAT in 2004 by the Governor of the Department of Valle who wanted to develop a program on food security for the Department with CIAT. Together with the Departmental Secretary of Agriculture, CIAT presented the Governor with a proposal based on the CIAL method and it was approved for one year in December of 2005.

The target population for the project was poor farmers residing in twenty rural district or *veredas* of ten Municipalities in the Department.¹ The 20 rural districts were selected for their poverty and food insufficiency by the Departmental Secretary of Agriculture who defined the objective for these areas as "*sembrar para alimentarse*" or "grow your own food."

These rural zones were suffering from serious problems of food insecurity: the households are the poorest in the municipalities with a monthly income below the minimum wage, low levels of education and without the resources to develop commercial farming apart from the cultivation of marginal coffee. At the time the project began the principal products were a little rain fed sugar cane processed as crude sugar; maize for household consumption and pineapples. Soil is infertile and there are no facilities for irrigation.

The macro context

In Colombia food and nutritional insecurity as an aspect of rural poverty contributes to social insecurity and violence. The population of the poor rural districts in Valle targeted for the implementation of the CIAL method are part of the 3.5 million nationally who, according to national census statistics for 2004, were unable to afford three meals a day for one or more days of the week (DANE, 2004). The low income of rural households not only affects their nutrition but

¹ Dagua (rural zones of Querebral and San Bernardo), La Cumbre (rural zones of Parraga and Agua clara), Restrepo (rural zones of La Altavía, La Edelmira), Calima – Darien (rural zones of La Gaviota, La Cecilia), Viges (rural zones of La fresneda and El Tambor), Zarzal (rural zones of Vallejuelo and Limones), La Unión (rural zones of Hoyo Hondo and Despensal), Trujillo (rural zones of Venecia and La Gaitana), Argelia (rural zones of El Río and Tarritos) Ansermanuevo (rural zones of La Hondura and La Diamantina) in the Department of Valle del Cauca.

the availability of working capital on small farms leading to a vicious circle of low productivity and food insufficiency. The trend towards reliance in off-farm and non-farm income, so that small farmers leave land uncultivated to seek work outside the local communities is widespread not only in the target area but nationally within Colombia and across Latin America.

The principal actors

The principal actors in the implementation of the CIAL method in Valle de Cauca were the Departmental Secretary of Agriculture, CIAT's bean breeder and CIAL trainer, the Mayors of the Municipalities and their agricultural extension offices, the UMATAs (Unidad Municipal de Asistencia Técnica Agropecuaria) and the farm community members.

Project beneficiaries

Farms are small (2-3 hectares) but even so, before the implementation, less than half that area was cultivated and very few farmers produced any food for household consumption. In these Municipalities small farmers sell about US \$600/year of coffee and some sugar cane or pineapples and otherwise work off-farm. A household with 2-3 days of off-farm labor per week was considered fortunate. In total farm households generate an estimated annual income of US \$1,500. In an average household of six people, that amounts to about 70 cents/per day/per person.

Almost all food available in these households was purchased. The normal diet consisted of a breakfast of sugary black coffee and a slice of bread; in the afternoon bean, lentil, plantain or pasta soup with rice and an occasional egg; no milk and meat was rare. At night a bowl of rice was consumed, sometimes with a potato and a cup of coffee. Typically a household would purchase 1 lb of dry beans for the whole week, equivalent to one serving of bean soup once a week for each family member. Children went to school so ill-fed and listless that school teachers would have to send them home early.

The service providers

The Departmental Secretary of Agriculture managed the project by transferring the funds to CIAT but had no other engagement with the activities. CIAT provided the CIAL trainer, an agronomist with over twenty years of experience with the CIAL method. The CIAT bean breeder selected an array of promising, advanced, biofortified lines that had not yet been released and made field visits to the CIAL trials to obtain feedback from farmers about their acceptability.

The CIAT trainer/agronomist trained the UMATA extension agents in the CIAL method. These extension agents are public sector employees, usually political appointees paid by the mayor's office and under the supervision of the mayor's office in each municipality. The Municipal governments are poorly funded by the central state and their tax base is weak. Thus funds for health, infrastructure, education and agriculture are scarce. The little that is available is usually doled out to cover election promises and most of the funds are destined to infrastructure.

4.2.2. Rules in use

In this section we describe aspects of service provision that are expected to change as a result of using the CIAL method, but as they were before implementation of the method. This description is intended to serve as a baseline for understanding the changes that did occur described later.

Service provision- agricultural research and extension

In Valle, UMATA extension agents are spread very thinly across a large geographical area and numerous, geographically dispersed rural households. In La Cumbre for example, one extension agent is expected to serve approximately 2000 households in a municipality with a population of 10,000 in 33 *veredas* or districts. UMATA agents usually have little or no financial resources that permit them to go out and visit farmers. Their extension approach before the CIALs was to visit a few individual farmers (usually upon request) and provide advice, usually when a major animal or plant disease or insect infestation was in evidence. They could attend very few individual farmers and could not make consistent follow-up visits to those who got their advice. On average, an UMATA agent would visit no more than 10 farmers per month.

Given the "grow your own food" objective defined for the targeted rural zones in these Municipalities, a project to provide local farmers with improved seed had been administered in the Department prior to the CIAL intervention. It illustrates the UMATAs' usual way of providing agricultural advisory services. The Coffee Federation, the Cauca Valley Corporation and RESA- the Network for Food Security -- bought maize and bean seed from a commercial seed company and distributed it to 245 farmers. According to the UMATA agents, the results were terrible- the maize only grew 30-40cm before it failed completely -- because the seed was intended for use by commercial farms in the Valley and was poorly adapted to the poorer highland soils and colder temperatures where the poor live. Not only was there waste of the public funds expended, but the farmers lost their investment in labor. As well the UMATA agents lost credibility with farmers. This project illustrates the uninformed, wholesale transfer of technology seen by officialdom as the way to solve the problems of low productivity in the poor rural areas.

In another project, the UMATA in La Cumbre tried to start up commercial cultivation of *estevia*: after the first year, the crop succumbed to drought and disease and the six families involved lost everything – on average US \$1000 per family. The UMATA agent lamented this result, saying “We didn’t know the project wouldn’t produce anything.” This experience illustrates another aspect of the customary technology transfer approach: that of involving farmers in high risk innovation without prior validation of the technology to see if it is appropriate for local conditions. Not surprisingly, farmers were highly critical of the UMATA.

The Departmental Secretary funded but did not accompany or evaluate the food security project. The project was seen as a way of showing farmers/ voters that the Secretary was paying attention to farmers’ needs but having met this political objective, the Secretary’s office paid little attention to the actual outcomes of the project. This reflected the absence of any culture of evaluation or even accountability in the public sector that leads to the expenditure of public funds without those responsible or the beneficiaries having any idea what was accomplished. Hence the Secretary’s agricultural projects intended to benefit the poor customarily donated a few bags of seed and fertilizer to segments of the farm population considered deserving. In the poor rural zones targeted for the CIAL intervention, there was no presence whatsoever of any technical assistance or even seed and fertilizer donations before the CIALs were established.

Technology

As is clear from the disastrous experience with maize and bean seed described in the previous section, the poor rural districts were highly deficient in improved food crop technology. Most farmers who took part in the CIAL application had never grown beans before or if they had, these were grown in patches more as a subsistence vegetable than as a commercial crop. Maize was grown, but only as much as could be consumed quickly before insects infested the maize cobs. Women on the farms complained that almost all the food for family consumption had to be purchased either in the small (and expensive) village shops or in a distant small town.

Farmer Organization and empowerment

There were no organized farmer groups in the area before the CIALs. Poor farmers avoided farm credit for fear of being unable to repay and losing their land. Farmer had very low expectations of the UMATA and seldom bothered to seek out the extension agents. Most of the poorer farmers were first and foremost laborers without the knowledge, technology or capital to work their land and they had no experience of collective action or group participation.

4.3. Implementation of the CIAL method

4.3.1. Motives for participating in the CIAL application

The Departmental Secretary of Agriculture chose the Municipalities and *veredas* in which the project was to be implemented, with the chief criterion being that these should be among the poorest Municipalities. They were selected using the departmental database. As the project was only for one year, beans and maize were selected as the target crops for improving food security with the objective of introducing new bio-fortified varieties.

From CIAT's perspective, the objectives were to obtain feedback from farmers on the acceptability of biofortified bean varieties that had not yet been released and to familiarize the UMATAS with the CIAL method on the hope that this would have a wider demonstration effect with the Ministry of Agriculture.

4.3.2. Timeline and roles

The project financed by the Departmental Secretary of Agriculture to organize farmer research committees to validate and select bio-fortified bean varieties and improved maize varieties for home consumption started in February 2006 and ended in December 2008. The CIALs outlasted the project and are still continuing.

Fifteen extension agents from ten of the poorest *veredas* (districts) were selected by the Departmental Secretary of Agriculture to receive training and to organize CIAL committees. The ten CIALs were formed and then preceded through the steps in the methodology as described in Table 4.2.

Table 4.2. Timeline Summary of CIAL implementation by CIAT.

Date	Activity	Participants
December 2005	Approval of the project	
February 2006	CIAL method course of five days .	15 UMATA extension agents: a commitment was required that each agent CIAL would set up one CIAL after the course
February 2006	Field work: motivation and establishment of CIAL committees	Community members in 10 communities 15 UMATA agents
March 2006	Planning of CIAL experiments	Elected CIAL committees in 10 communities UMATA agents CIAT trainer
March 2006	CIAL experiments with varieties planted (see table 4.3)	Elected CIAL committees UMATA agents
May and June 2006	Evaluations of varieties by farmers (using the method participatory technology evaluation – PTE)	Elected CIAL committees UMATA agent in each community CIAT trainer, CIAT breeder
July 2006	Analysis of results of evaluations and harvest	Elected CIAL committees UMATA agent in each community
August 2006	Meetings for report back to communities	Community members UMATA agent in each community
September 2006- December 2006	The crop cycle was repeated with fewer treatments (varieties) in the CIAL trials and larger plots – called the “ensayo de comprobación” or validation trial	The UMATA agents only attended the planning and analysis sessions of the CIAL. The rest of the process was conducted by the members.
January 2007- August 2007	The crop cycle was repeated with fewer treatments (varieties) in trials on a commercial –scale. The CIAL members had not grown beans on a commercial scale before Maize varieties were requested and included in CIAL trials.	The UMATA agents attended the planning and analysis sessions of the CIAL and purchased seed from the CIAL to distribute to other farmers. The rest of the process was conducted by the members who also marketed seed of bean and maize varieties. The CIAT trainer visited to demonstrate small machinery for threshing beans and maize.
August 2007- December 2007	Commercial scale plots were planted by the CIAL members and by other members of the community. No data is available on how many farmers adopted. Maize and bean seed production began. The CIAL members helped coordinate marketing of grain and seed of the maize and beans. Records were made of their production and sales (see Table 4.3)	The UMATA agents attended the planning and analysis sessions of the CIAL and purchased seed from the CIAL to distribute to other farmers. The rest of the process was conducted by the members who also marketed seed of bean and maize varieties. Some individuals took out credit to purchase small machinery for threshing and rented the machine out to other farmers.
January 2008- August 2008	Commercial scale plots were planted by the CIAL members and by other members of the community. No data is available on how many farmers adopted. The CIAL members helped coordinate marketing of grain and seed of the maize and beans. Records were made of their production and sales (see Table 4.3)	The UMATA agents attended the planning and analysis sessions of the CIAL and purchased seed from the CIAL to distribute to other farmers. The rest of the process was conducted by the members who also marketed seed of bean and maize varieties including from other farmers who adopted the varieties. Some individuals took out credit to purchase small machinery for threshing and rented the machine out to other farmers.
August 2008- December 2008	Commercial scale plots were planted by the CIAL members and by other members of the community. No data is available on how many farmers adopted. The CIAL members helped coordinate marketing of grain and seed of the maize and beans. Records were made of their production and sales (see Table 4.3)	The process was conducted entirely by the CIAL members who also marketed seed of bean and maize varieties including from other farmers who adopted the varieties. Some individuals took out credit to purchase small machinery for threshing and rented the machine out to other farmers.
December 2008	End of the food security project	End of support from the Departmental Secretary of Agriculture and CIAT
January 2009- Dec. 2010	CIALs continued with support from the Municipalities	UMATAS, Mayors, Municipal Councilors, CIALs, local supermarket

The CIALs were offered several biofortified bean varieties with a range of characteristics by the CIAT bean breeder. At this stage no one knew if these materials would be adapted to local conditions in the ten Municipalities or which variety would turn out to be the best from the farmers' point of view. As Table 4.1 illustrates, these varieties turned out to provide widely different yields under local conditions, one yielded less than the local variety planted in every trial as a comparison while another yielded more than twice as much. The CIALs chose different combinations of these varieties for trials, not all chose the same ones. The CIAL varietal trials were planted by the farmers on their own land. They put in the labor and some fertilizer was donated by the UMATA. At two stages of the crop the varieties were evaluated by the CIAL members. At harvest they had a meeting of the community where the CIAL is expected to give a report on its activities and the community members attending could taste all the beans. Selections were made based on farmers' criteria for evaluation of the varieties, including taste tests. Women were closely involved in the process of evaluation. Then each CIAL designated three to four varieties to be planted to an expanded area in the second crop cycle and the same process were followed. At the end of the second crop cycle the CIALs selected the varieties that were best adapted to local conditions and began to multiply seed. They received training in seed production from the CIAT trainer/ agronomist who also introduced them to small machinery for threshing beans and milling maize. These machines had been adapted by other CIALs in Cauca to small farm and hillside production conditions and were being replaced and sold throughout Central and South America. Three individual farmers took out credit for these because their commercial plots of beans were generating income: they rented out the machines along with their own labor as machine operators and this enabled the other farmers in the communities to overcome the constraints of hand-threshing large volumes of beans and maize. As a result overall area planted and volume of beans and maize produced went up.

Table 4.3. Example of an experiment planted by the CIALs: CIAL Caimital Vijes, Colombia. 2005.

Biofortified Bean Varieties	Seed planted kgs	Grain Harvested kgs.
Ica Tone	2	35
Nua 30*	2	41
Nua 35*	2	35
NUA 20*	2	18
Cal 96	2	60
Local Variety (Calima)	2	25

Fidelity of the implementation

The strategy for training was to first, have a two day course in CIAT for all the UMATA extension agents and for those who could not attend, a training session was conducted in their offices and in the field using the CIAL handbooks. Only two could not attend the course. Next there was a process of follow-up on the course participants that involved at least two visits on-site by the trainer. The follow up visits took place at approximately one month after training and then at the point in time of the first harvest of the CIAL experiment when the EPT was practiced. Each extension agent agreed on dates in which they received a visit, they reported on what they had done so far to implement the methodology, reported attendance at meetings and a reflection on their problems or uncertainties. After this session, the trainer accompanied the extension agent to the communities where they both met with the CIAL committee and visited the experiments.

The critical reflection on the training produced several points. The UMATA trainees had no difficulties in executing the weekly visits to a CIAL that met as a group. The UMATA saw benefits from delegating activities to the group and being able to do visits less frequently – this is one of the key features of the method. The agents were evaluated by the trainer to see if they understood that the CIAL experiment is not a demonstration plot. The aim is to evaluate and select something that might work locally not to demonstrate a sure thing. The most difficult thing was to get the agents to hold the retro information meeting to inform the whole community – principally because it is not a custom to invite retransformation from the community. They ended to see the process had ended once the beans had been harvested. But the communities demanded meetings as curiosity grew about what the CIAL was doing.



Photograph 2.

CIAL member laying out the first CIAL trial with one bean variety per furrow. At first farmers thought these small plots were a waste of time but later understood the importance of small plots for managing risk.

“WALKING ON THEIR OWN” –AN EXTENSION AGENT’S CONCLUSIONS
ABOUT THE CIAL METHOD

“Attending to individual farmers is difficult. It takes a whole day just to get to one farm and make the visit. Then it’s difficult to keep going with any kind of follow-up. I was invited to the CIAL training but I didn’t expect much of it, I didn’t think it was going to be much help to me. The first trial we set out with the CIAL was so small, it was only ten furrows, each one a different bean variety. Well, even the farmers thought that was a waste of time, it was not going to generate any income for them and was just making them waste their labor.

But then we selected two varieties- ICA Tonne and CAL 96 that were strikingly resistant to the “*invierno*” [i.e. insects and disease problems] and had really good yields. Then we planted much bigger plots with those two varieties. People began to get the idea of what the CIAL was doing when they saw those varieties in the fields and everyone wanted the seed. We started with five farmers in the CIAL and now there are more than twenty growing one or other of those varieties. The Mayor heard about it. Well, he’d been on a visit to CIAT and he thought it was all talk but he was convinced about the CIALs when he heard the farmers talking about the new bean varieties. In Guadalupe *vereda* farmers said they could eat beans every day of the week and before the CIAL, they’d be lucky if they’d get any beans at all. So The Mayor said that we were only to donate the UMATA’s fertilizer and seed to farmers who formed CIALs.

The CIAL helps me manage technical assistance, For example, they do the follow-up on their own after a CIAL meeting and they let me know what they’ve done. They know what to do and they’ve taken charge of running their own trials. They know how to choose a variety and produce seed and they help the other farmers in the *vereda* to produce. After they started with beans we did another trial with maize varieties, and now everyone has more than enough maize to eat and they are selecting and selling the seed. Now they’ve started a new trial with sweet potato varieties. I don’t need to go from farm to farm any more. In one visit the CIAL brings twenty of more of the farmers in the *vereda* together, they run the meeting themselves and they follow up afterwards. That means I can concentrate on distributing the bean and maize seed to other farmers in other *veredas*.

I don’t think we need to adjust the CIAL method. The small plot at the beginning is alright- it helps to avoid risk. Now the farmers are standing on their own feet, they are “*caminando solo*” [walking on their own] and the process is sustainable.

Dubian Martinez, UNATA extension agent, La Cumbre Municipality

Extension agents commented frequently about the CIAL method that they did not have to keep visiting the farmer groups or give them much attention, something that was always difficult. This helped the UMATA’s agents to have more presence in the *veredas* without having to physically

go there. Having seed produced by the CIAL to distribute to other *veredas* where there was no CIAL or farmer group also increased their presence in *veredas* which previously they'd had to neglect. Another comment was that some extension agent tried using segments of the method, such as the participatory diagnosis, for other crops like fruits.

One adaptation was introduced into the application of the method The UMATA field agents began to space out their visits to the CIALs very soon after the first semester to one visit per month and even once in two months because they said the groups knew how to run the experiments.



Photograph 3.

A commercial bean plot with CAL 96 biofortified beans, one of the CIAL varieties, in association with *lulo* fruit bushes in Caimital *vereda*

Spontaneous experimentation by farmers with cultural practices sprang up, often involving new associations of beans with other crops like fruit bushes (*lulo*) or pineapple. Maize varieties were provided by CIAT and included in the CIAL trials and the CIALs produced maize seed as well as bean seed.

4.4. Outcomes of the implementation



Photograph 4.

Local farmers cultivate beans on a commercial scale for the first time using variety CAL96 selected by the CIAs.

4.4.1. Prerequisites for co-production: Learning, changes in attitudes and social capital formation

Self-respect and self-esteem of community members increased

The CIAL members commented on how they liked having the opportunity to make decisions themselves and to take responsibility for the experiments, in contrast to being told what to do. One farmer commented “When our group realized that we are really responsible for managing the experiment ourselves, then we began to take charge of many things.”

There was a period of heavy winter rains in 2006 and the only beans that remained standing in the veredas was the experiments- the few beans growing in farmers’ fields all fell victim to disease. Local people observed and commented on this. As a result the CIAL members felt proud that the varieties they were raising were so strong. The CIAL experiments began to attract the attention of their communities. The CIAL members commented that they were not waiting for the UMATA agent to tell them what to do, they began to see what needed to be done. One idea that flourished in the CIAL Pajaro de Oro, in La Union was to experiment with crop associations and intercropping. These are important practices for food security and they wanted to recapture these forgotten practices. Put into practice as an association of beans with maize, vegetables associated with beans, fruit bushes associated with beans these association spread the novel practice of growing the new bean varieties on a commercial scale. The Box below illustrates how one farmer became a supplier of seed and vendor of grain supplying local grain merchants, local

farmers and the UMATA which purchased and then distributed his seed to other farmers with confidence that it would produce good results.

Table 4.4. Destination of bean harvest of the farm CIAL member William Papamija, Finca San Lorenzo, August 2008.

Seed sold to the UMATA, Vies for other communities	250 Kg.
Seed sold to other farmers	40 Kg.
Grain sold to grain merchants in Belalcazar de Yumbo.	1,250 Kg.
Grain sold to other grain merchants	563 Kg.
Own seed for 2008.	150 Kg.

Source: J. I Roa (2011) personal communication based on his interviews with key informants.

Feeling ownership of and pride in the success of the new varieties and the novel crop associations, and the spread of the new bean and maize varieties on a commercial scale among local farmers gave the CIAL members status in their communities. The number of farmers attending CIAL meetings rose steadily during 2006-2008: for example, the participants in one *vereda* grew from four committee members meeting alone in 2006 to 24 participants in 2010.

When asked what would happen if the UMATA stopped supporting them and the UMATA agent lost his position (UMATA agents are political appointees and change with each election), the CIAL members in La Cumbre replied “We’ll keep going even if the UMATA doesn’t return.” CIAT valued the feedback provided by farmers as an input to the bean breeding program. This made farmers appreciate the significance of their evaluation of varieties went beyond their own immediate needs and increased their self-respect.

Mutual trust between actors increased

By participating in the CIAL farmers changed their attitude towards the UMATA from being passive receivers to actively involved executants. They began to visit the UMATA and make demands for seed and fertilizers and for help in marketing after they were contacted by a supermarket wanting to purchase their grain. Farmers’ trust in the UMATA agents increased and they perceive that they can get promising technologies through the CIALs.

On the other side, the UMATA agents now see that they can trust farmers to run the CIAL trials and select varieties that are valuable for the whole Municipality. The UMATA agents have cut back on the time they spend with the CIALs and increased their delegation in them. One of the most mentioned results both by farmers and by UMATA staff was the improvement in

communication and trust between them. Nowadays the work done by the UMATA with the CIALs is highly regarded by farmers.

4.4.2. Embeddedness for co-production : Institutional innovations, changes in rules, practices involving power sharing

This process involved power sharing in the relationship between farmers and the UMATA extension agents: farmers gained power and authority over deciding what varieties they and the UMATA would recommend, produce for seed and distribute to other farmers in other *veredas*. The role of the extension agent changed from being a source of (dubious) information and advice to being a facilitator of the CIAL process and of the link between the CIAL and the research station, in this case, CIAT. The extension agent had a vital role in disseminating the products of the CIALs' work to a wider set of beneficiaries than would otherwise have been possible. This adjustment in roles was an important feature of complementarity. The CIALs were not a substitute for the extension service but they helped to make it more effective.

However, institutionalization of the CIAL method was incomplete. The UMATA agents complained that they needed better political support from the municipal councilors who vote on the Municipalities' plans of work and budget. Councilors were not supporting budget allocations for the seed and fertilizer the UMATA agents wanted to use to set up new CIALs.

The UMATA agents tried to get their Mayors to support the CIALs on a permanent basis. The Mayor of La Cumbre promulgated a policy that no seed or fertilizer was to be donated unless it went to a CIAL. However in the other Municipalities agriculture was a low ranking issue and few resources were allocated to agriculture in 2008-10. The Departmental Secretary of Agriculture did not monitor or evaluate the project and remained largely unconcerned about and unaware of its outcomes. This handicapped institutionalization of the CIAL method in the Municipalities.

Efforts were made to upscale the approach and are still in progress in order to make a contribution to the national process of redesigning R&D targeting small holders in Colombia. The Mayor of La Cumbre complained that there was not enough diffusion of the CIAL methodology and not enough of the mayors know about the CIALs. In response CIAT conducted a study tour with UMATAS of 5 Departments in December 2009 and then a workshop with 9 municipalities [February 2, 2010] and another workshop in October 2010 people from the Min of Ag attended and they recommended that the methodology be presented at a seminar in December, 2010 where all the organizations involved in extension – CENICANA, PALMA, CACAO, FEDECAFE,

Universities, NGOs like CCE, Corporación PBA to discussion about methodologies for working with the sector campesino. At the end of the workshop the Ministry expressed interest in mounting its own pilot of 30 CIALs.

4.4.3 Co-production

Blended technology that is a fusion of complementary local and exotic technical knowledge

Farmers selected a number of varieties of the biofortified beans that surprised the CIAT breeder who predicted other varieties would be better performers. This meant that farmers' local knowledge and ability to select under the stress of local conditions led to a number of varieties being multiplied for seed and disseminated to farmers that would otherwise not have been made available.

Agricultural advisory service(s) that depend on the combination of unique functions performed by beneficiaries and traditional providers

The CIAT bean breeder supplied genetic diversity he considered had the resistance and adaptation suitable for the area and allowed the CIALs to select from this. The varieties that went out to seed suppliers and other farmers were the final selections of the CIALs. Thus the technology was the product of complementary breeder and farmer selection.

An important change in the rules in use for service provision was the shift from a technology transfer approach by the UMATA agents towards allowing farmers to evaluate and decide alternative technologies. For the first time, UMATA extension agents had technologies they and farmers felt confident about, having tested them locally. Having something valuable to extend went hand in hand with discovering that the extension agent was more efficient and many more farmers were benefited by working with groups in the form of CIALs than had been possible previously by visiting individual farmers.

The CIALs and the UMATA agents developed complementary roles. The UMATAs adopted their extension approach so that the CIALs took responsibility for providing technical recommendations and seed of new varieties and the agents devoted their time to supervising and distributing it to other farmers. In this way complementarity was established. CIALs were not a substitute for the extension service but they helped to make the UMATAs more effective.

4.4.4. Benefits of co-production

Improvement in the quality of service in terms of relevance of technology, training or advice to the end users, some of whom are co-producers

Having seed to sell of new varieties that proved visibly more resistant and more productive than the local variety improved the relevance and quality of the UMATA service. The success of bean varieties in two semesters stimulated the CIALs and the UMATAs to ask for maize varieties from CIAT and these were included in the CIAL trials. The CIALs then produced maize seed as well as bean seed.

In contrast to the projects that disseminated unsuitable seed and promoted ill-adapted crops for commercialization, there was more trust and confidence in the UMATA agents who distributed CIAL seed to multiple farmers in the Municipalities and this made it easier for them to work with more farmers (see Box below).

Impacts of CIALs in Valle

As reported by key informants.

- More and better food on the table
- Children go to school better fed and better dressed
- Employment on the farm (80% of own labor used to be sold off farm- this dropped to 50% and then to zero and then to hiring in labor once beans began to be produced commercially)
- Market participation went up and so did income
- People wear new clothing in the CIAL meetings
- Buying a better TV, cell phone, refrigerator, sound equipment
- Some bought own house or improved their house e.g. painted the house at Christmas time
- Investing in the farm – buys fertilizer, in some cases small machinery
- Began to use credit because has confidence in generating income to repay it
- Exchanged walking for bicycle and then to motorbike
- Children able to attend primary, secondary and even tertiary education
- More confidence in how to approach and negotiate with local authorities; farmers know how to request technical assistance from the mayor

Second, the UMATAs were functioning as a conduit for new technology that was fully validated locally, thus reducing the risk of innovation for local farmers. Some farmers began to take out farm credit, hitherto avoided by most farmers for fear they would not be able to repay it and would lose their land. As one farmer explained:

“Antes sembrar una plaza de maíz se asustaba—ahora no! No da miedo sembrar! [Before the idea of planting one plaza of maize was scary – but not anymore! Now we’re not afraid to plant!]

Farmers pointed to many aspects of the benefits they were realizing from the improved UMATA service and the technology, summarized in the Box above.

Increased coverage of the service to include more of the end user population (e.g. poor farmers, women, ethnic minorities) some of whose members are co-producers

The CIALs harvested and produced seed that was distributed by the UMATAs to other veredas and communities without CIALs. They were confident in the appropriateness and productivity of the new varieties and were able to distribute these to new farmers without intensive supervision. Thus more farmers in the poor rural areas had access to new bean and maize varietal technology than ever before. The seed production was a key factor in keeping the CIALs going, providing a technology farmers and extension agents had confidence in.

More farmers were able to benefit from the UMATA's agricultural advisory services due to the CIALs. While records were not made of the number of farmers, the provision of reliable, locally validated bean seed in the target municipalities rose from zero in 2006 to three tons in 2008 for example.

Women were little involved in the CIALs at the beginning of the implementation: 90% of those attending meetings were men. But after the first harvest women increased their presence in CIAL meetings. They took part in the cooking and taste tests after the harvest and were especially interested in maize because they take care of chickens that are fed with maize. As maize and bean seed was produced women took more part in decision-making. For example, a supermarket owner wanted to give the CIAL in Agua Clara a loan to plant more beans and sell them to the supermarket. The women in the families were against the loan and insisted that the CIAL members should agree to no more than half the sum the supermarket wanted them to borrow. Among the CIALs there are several instances where women have made an agreement with men to co finance a plot of beans or maize and they share the harvest for consumption and market. These women say they used to be dependent on the men in their families for money to buy chicken feed. Now they can supply their own feed. Women began to manage their own income because they were now sharecroppers with the men.

Viges is a community where the UMATA buys seed from the CIAL and gives it to 50 poor families as a part of the Municipality's extension program – many of these are indigenous families of Indian origin and the poorest in the community. In Argelia, the CIAL helped the Municipality develop its program for refugees from rural violence elsewhere in the country being resettled locally.

Table 4.5. Production of grain and seed By CIALs 2009.

	Grain Produced (tons)	Seed Produced (tons)	Value of sales (US dollar)
Beans 4 plantings	27 tons	3 tons	\$51,000
Maize 4 plantings	84 tons	5 tons	\$78,500
TOTAL			\$129,500

Source: J.I. Roa, 2011.

REFUGEES IN ARGELIA AND ANSELMA NUEVA

In Argelia the UMATA included in the CIAL, refugees who had been settled LOCALLY with land grants from the Municipality. The refugees are people who have fled from zones of civil war. The Municipality purchases farms and divides them up among those in need of resettlement. One advantage of the CIAL methodology for working with refugees is that the innovation process starts from the knowledge of the participants and not with a topic imposed by an outside agency. This is important because the refugees bring a diversity of knowledge and preferences, and some are expert in crops that are not known locally. In Argelia and Anselma Nuevo, the refugees came from an area where maize consumption is an important part of their local culture and they prioritized maize for their experiments.

The CIAL process is flexible and able to respond to farmers' preferences even when a restricted menu of options is offered – as in this case. Trials of multiple bean varieties and one new maize variety were established first in Argelia. Then the UMATA agent enabled the CIALs to set up an experiment which included more varieties of maize – their maize experiments expanded to include 5 varieties. They selected several maize varieties, produced and sold seed in the local community. The UMATA distributed these varieties to other veredas and other municipalities. Starting from farmers' own preferences and knowledge helps them to take ownership quickly of the experiments and frees up the extension agent more quickly. In Agua Clara, refugees from further south of Colombia wanted to try sweet potato, a crop native to their home region and unknown locally but with potential for Agua Clara.

In this way the CIAL process facilitated the social and economic integration of the refugees. At the beginning of the CIAL process the refugees had been four years in their new farms struggling to survive and ignored by others in the community as well as the UMATA. After the first semester with the CIAL, refugees were more integrated into a group with other, local farmers and after the second semester they were involved in marketing with the local farmers in the CIAL.

The CIAL helped refugees gain economic stability from the production and sale of produce but also status in the community as part of a successful group bringing the benefit of innovation to the local farmers and had formed relations of confidence and mutual trust with the local people.

4.5. Lessons and suggestions for improvement

The main lesson derived from this implementation of the CIAL process was the importance of raising awareness and educating local government decision makers and politicians on the benefits of the CIAL method in order to get resources allocated to the CIALs in the Municipalities'

annual plan of work and budget. This would assist the UMATAs to expand the number of CIALs to other *veredas*.



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5. CASE STUDY: SEP WITH IPTK, IN RAVELO, BOLIVIA



Photograph 1.
Quinoa and barley cultivated
on steep hillsides in Ravelo
for household consumption.

5.1. Background information

This case involves the implementation of SEP from 2007– 2009 by the Instituto Politécnico Tomas Katari (IPTK) in the municipality of Ravelo, in the North Potosi region of Bolivia. The case study looks at the process of implementation to understand how co production of agricultural technology and services takes place, understanding also the factors that enhance or complicate this process.

5.2. Context of the SEP application

5.2.1 Background

The Instituto Politécnico Tomas Katari (IPTK) is a Bolivian NGO that works on rural development in one of the most depressed and poor areas of Bolivia. At the time when SEP was implemented in 2007, IPTK had four development projects on natural resource management, improvement of agricultural production, strengthening of technical and social capabilities and development of organizational leadership. The projects involved 22 communities. SEP was implemented in these four projects from 2007 to 2009 to enable participating farmers to better articulate their demands with IPTK as their principal provider of agricultural advisory services.

5.2.2. The macro context

The basic principles and policy for agricultural development under which IPTK operates are defined by the Bolivian National Development Plan and INIAF. In 2003 the Bolivian government launched the National Development Plan called “to Live Well”. This development plan rests on the Andean principles of solidarity and reciprocity. One of philosophical pillars that guide the plan is to base development on the use of participatory methods that rescue local knowledge and develop appropriate technologies with a blend of local and external knowledge. Even though the importance of participation is formulated in the national development plan, in practice, there is little familiarity with participatory tools and methods among the multiplicity of NGO service providers expected to respond to this call. (Bolivian Government, 2006). Furthermore, the national development plan emphasizes the need to recover and preserve local traditional knowledge and integrate it with scientific knowledge for the development of appropriate technology.

The *Instituto Nacional de Innovación Agropecuaria y Forestal de Bolivia* (INIAF – Bolivia) was created in 2008 as an Agency in charge of agricultural innovation and technical assistance service provision. It is in an early stage of formation but is being developed to address research, validate and adjust technology based on the integration of local knowledge and conventional scientific research, through the use of participatory methods such as Farmer Field Schools and Farmer-to-Farmer extension among others. Ultimately INIAF aims at guiding agricultural advisory services provided by NGOs like IPTK.

After the political crisis that characterized Bolivia at the beginning of the 2000s, IPTK aligned itself with the new development trends formulated by the government and continued working to include the most vulnerable groups of society by introducing into its program, the use of other participatory tools. (IPTK, 2007).

The municipality of Ravelo where IPTK carries out its work has one of the highest levels of poverty in the department of Potosi according to census estimates: 72% of the population are below the poverty line as defined by unmet basic needs (UDAPE, 2008). The poverty levels are basically reflected in food shortage through the year, poor housing conditions, lack of access to health and education services, insufficient and poor quality roads and little access to markets.

In Ravelo there are no other private or public institutions working for development. The only two rural development initiatives other than those of IPTK are delivered by the municipal government

and focused specifically on the construction of a sports field and the construction of water supply infrastructure.

5.2.3. The principal actors

In the municipality of Ravelo IPTK is implementing four development projects that address different productive and social problems identified in the area. The focus of the projects varies and includes natural resource management, technology innovation to improve agricultural production, organizational strengthening and development of leadership capabilities of indigenous and producer organizations. The four projects were executed in the same geographic area and with the same beneficiary group.

Project beneficiaries

The principal actors in the process were 22 indigenous² community organizations³ of Quechua origin in two districts of the municipality of Ravelo. These organizations were linked to IPTK's projects by a group of 2 communal leaders from each community from the "Cantones"⁴ of Toroca⁵ and Huaycoma⁶ (IPTK, 2010). Community organizations in the area have mainly political purposes and are rarely related to production, services or markets.

The articulation with project activities usually took place through the intervention of these leaders. The capacity development in PM&E was provided to this group of leaders and they were responsible for the implementation of the method in their communities.

The service providers

The IPTK is a Bolivian NGO with more than 30 years of experience in development through actions on health, education, organizational strengthening and support for production amongst others (Barrios Villegas, 2006). During this period of time it has established development project

² The Ayllu is a traditional indigenous organization that dates back to the Inca Empire. It was established to aggregate communities in order for them to manage natural resources and pay tributes to the empire. Later on the colonial period also based the tribute collection in this ancient form of organization.

³ The "Sindicato Agrario" is a form of organization that emerged after the revolution of the land reform in 1952. Former private lands "Haciendas" held by Spanish descent were distributed among local people. They organized themselves in "Sindicatos" as a form of communal representation that enabled them to participate in second and third level organizations at regional and national level. In this document the concept of "Sindicato" is not translated to English due to the different meaning embedded in the concept of Syndicate.

⁴ A local district that aggregates a group of communities.

⁵ El Canton Toroca incluye las comunidades de Toroca, Chaqueri, Cotan, Yuraj Cancha, Yawacu, Roja Loma, Timaracu puna, Achihuata, Laliwata, Khosihuata.

⁶ El Canton Huaycoma incluye las comunidades de Cuirí Bajo, Teja molino, Tapial, Cuirí baja, Thipagari, Cancha pampa, Oquita, Molle K'asa, Lampasuni, Mocko cutani, Phuitina, Toroquilla, Kuchuera.

like the CENPRUP that has been professionalizing young people from rural areas in different regions of Bolivia. It has also developed the project “Health for All – Chayanta” that has been a reference at national level as an example of service provision in rural areas.

Since 1992 IPTK has been implementing agricultural and livestock development projects, and during the last 7 years projects on sustainable rural development have been prioritized in the four municipalities of the Chayanta Province in Potosí. Nevertheless, IPTK has also executed infrastructure projects to support production and conservation projects to maintain the basis of natural resources in the municipalities of Colquechaca, Pocoata and Ocuri in Potosí (IPTK, 2006).

IPTK received training from PROINPA Foundation, a Bolivian research institution that works on different aspects of rural development in Bolivian.

The Public Sector

The municipal government of Ravelo is one of the poorest municipalities in Bolivia. Insufficient funds make the job of providing services of health, education, infrastructure construction and support for production unreachable. Most of the funds are usually destined to infrastructure in the central towns and very little reaches communities.

5.2.4. Rules in use

This section depicts the baseline situation before the SEP implementation was launched, with respect to service provision, technology, farmer organization and monitoring and evaluation.

Service provision

IPTK provides agricultural advisory services to the communities involved in the SEP implementation. These services involve technical assistance, organizational strengthening and some agricultural inputs. IPTK had a mixed model for extension where it had some participatory tools in use for diagnosis of farmers’ demands and priorities but its strategy for responding to demand was a top-down technology transfer approach. IPTK uses a model that includes local people in the identification of their technological needs and in the formulation and execution of project activities. Leaders of the community organizations, the municipality of Ravelo and IPTK jointly develop project proposals. Farmer promoters have an important role in extension. Each community identifies two local promoters to take part in a strong capacity building process by IPTK staff. Selected promoters attend capacity building modules to learn about technology innovation alternatives. They also attend training modules designed to strengthen their

leadership and facilitation skills. Later on they assume the responsibility of teaching the community as a whole, guided by IPTK staff.

Technology

The municipality of Ravelo is the poorest one in the area of North Potosí. It is characterized by high food insecurity due to low agricultural production and intense natural resource degradation. Due to the lack of productive land, the agricultural frontier is being expanded either for agricultural production or for grazing. Trees and bushes are often used as fire wood intensifying the degradation problem. The main crops cultivated are potatoes, wheat, corn and barley and they are gradually losing productivity due to poor seed quality, lack of new improved varieties, pest attacks, loss of soil fertility and water shortage.

Farmer Organization and empowerment

Farmer organizations can be of two different types. Local community organizations or “Sindicato Agrario” that was established after the revolution of 1952 on former large private lands, and “Ayllu” as a traditional indigenous organization that dates back to pre-colonial periods. In these organizations leaders usually are in office on a rotational yearly basis. All individuals have the chance of being leaders when their turn comes independently of their abilities and capabilities.

The levels of poverty along with the lack of education and historic relations of domination with the Inca Empire initially, later the Colonial Haciendas and “Encomiendas”⁷ and the later Republican Haciendas has perpetuated vertical structures and forms of relation between farmers and institutions and even internally in their local organizations. Women rarely participate in these processes and if they attend meetings their opinions are almost never expressed.

Monitoring and Evaluation

Within the Andean culture, traditional organizations have their own methods of monitoring progress of activities. What is usually done is that at the end of each term in office the communal representatives inform of the activities delivered during their time in office. This is usually done verbally and has no systematic or structured process of data collection. The Popular Participation

⁷ The encomienda is a labor system that was employed by the Spanish crown during the colonial period. The crown granted a person with a specific number of natives from whom they were to take responsibility. This responsibility included protecting them from warring tribes, instructing them in Spanish and Catholicism and in return they collected a tribute in the form of labor, gold or other products.

Law⁸ introduced the concept of social control where a vigilance committee was formalized to monitor progress of municipal activities. Usually this vigilance committee is designed by local authorities and represents the interests of the communities involved. Unfortunately these vigilance committee representatives also lack the tools to develop a systematic and structured process of monitoring and evaluation.

As an NGO financed by different international donors, IPTK planning, monitoring and evaluation processes are guided by the logic framework. This tool helps the institution report back to the donors the progress and achievements throughout the project execution. Progress reports are usually written by staff responsible of different geographic areas and centralized by the institutional "Planning, Monitoring and Evaluation Unit".

5.3. Implementation of the SEP method

5.3.1. Motives for participating in the PM&E application

IPTK claims to promote local organizations as actors and promoters of their own development. IPTK visualized a potential contribution of SEP in promoting an active participation of farmers with more ownership of IPTK projects, as well as improving the engagement of women.

5.3.2 Timeline and roles

In a process of disseminating new participatory methods designed and/or adapted to the Bolivian Context, the FOCAM project financed by DFID developed a series of capacity building events in different regions of Bolivia. IPTK through some of its staff participated in one of these events in Sucre and identified SEP as a method that could contribute to the achievement of their institutional and project activities. This is when they contact PROINPA Foundation who had the expertise in the methods to build capacity of IPTK staff and support the implementation of the method. The process followed the sequence presented below:

1. In August 2007 first four day SEP workshop was held in Sucre, where IPTK's field staff and other members of development institutions attended. Participants received practical tools and were taught the SEP methodology as presented in the protocol.
2. In May 2008 a letter of agreement was signed between IPTK and PROINPA to support the implementation of the SEP methodology in Ravelo
3. In August 2008 together IPTK field staff previously trained in SEP and PROINPA experts trained 78 promoters from the two cantons of Huaycoma and Toroca. Huaycoma and

⁸ 1551 Law of Popular Participation approved by the Bolivian government on April 20th 1994 formalizes the existence of a vigilance committee and their roles. (Article 10: Vigilance Committee)

Toroca cantons were in the area of the four IPTK projects and were selected because it was more feasible to access them by road. In other cantons and communities there is no road access and the only way to reach them is by foot through long walks that vary from 4 hrs to a day or two.

4. From the beginning of 2008 to 2009 IPTK's staff supported the implementation of the SEP methodology by local promoters in Toroca and Huaycoma. Technical staff in every area met with the local organizations and through the promoters assisted the implementation of the first phases of the SEP methodology. Once formats were developed for evaluation promoters took over the process and began evaluating activities delivered by IPTK's field staff. The activities evaluated following the SEP methodology included field days, classroom sessions for teaching improved practices and field tests of technology amongst others. After every event there was a SEP evaluation and the results were socialized with the technical field staff involved. The results of the evaluation were shared to negotiate agreements to improve performance in the next event. As a result a continuous feedback started from the farmer association members via the promoters, on the day to day performance of the technical field staff. During this period of time SEP was progressively incorporated in the leadership development activities carried out by IPTK.
5. After two months of implementation, bimonthly visits by one of the PROINPA trainers began and continued during the rest of 2008 and the whole of 2009. In each visit the trainer met with IPTK's field staff, asked about problems and difficulties and tried to collaboratively find solutions to some bottlenecks in the process. There were also field visits where PROINPA trainers meet groups of promoters. Where SEP was being started the trainers supported the field staff in the implementation of the SEP planning and delegation of responsibilities. Where SEP was already beginning implemented the trainers observed and co-facilitated the evaluation delivered by the organizational members in charge of the evaluation.
6. In June 2008 Corporación PBA from Colombia⁹ conducted a one week workshop to teach people how to apply the EPPR methodology. The workshop included the different partners of Cambio Andino in Bolivia and five of IPTK's field staff applying SEP participated in the event. No farmer association members participated.
7. In August 2008 the implementation of the first part of EPPR began in the field. Only the first part of the EPPR method was applied by IPTK's field staff. This involved introducing

⁹ A Cambio Andino Partner in Colombia.

group dynamic exercises into process of leadership formation that IPTK was already delivering in the area. These group dynamic exercises are designed to enhance self-esteem, communication skills and sensitivity to social difference like gender and ethnicity. For the remainder of EPPR there was supposed to be on line training but due to connectivity difficulties in Bolivia this never occurred.

8. In October 2008 there was a regional study tour visit organized by Cambio Andino. Partners from Colombia, Peru, Ecuador and other partners from Bolivia. Two representatives from PRODII participated in this event and were able to see and learn from the experience of SEP in Chaco.
9. Since October 2008, in the bimonthly visits that were being done to reinforce SEP, PROINPA trainers included reinforcement for EPPR group dynamic exercises.
10. Due to change in field staff at the beginning of the year, PROINPA trainers had to deliver a reinforcement workshop on SEP and EPPR for Huaycoma technical field staff in February 2009.
11. In June 2009, there was a second workshop with IPTK's staff to reinforce knowledge and review the SEP and EPPR methods to find alternative solutions to problems encountered. In this workshop both field staff and personnel from the Planning and monitoring unit in IPTK participated.
12. In July 2009 field staff from partner institutions in Bolivia including IPTK's staff working in Ravelo came together in Sucre for a one week course on facilitation techniques. The trainers in this course were the same expert staff supporting the process with IPTK. The objective of the course was to have people with field experience in the implementation learn how to teach the method to other technical staff.
13. In December 2009 IPTK's extension staff that participated in the workshop of SEP and EPPR facilitators formation, delivered a training workshop to staff working with development NGOs in North Potosi.
14. At the beginning of 2010 the PROINPA trainers held an analysis workshop with IPTK's field staff. The analysis worked exhaustively through every step of the methodology in order to understand how it was applied and if there were any adjustments or modifications made to the initially proposed protocol. The conclusion was that there were no changes to the step by step process or to the tools. The changes proposed were the use of language and examples adapted to the local context.

Table 5.1. Timeline Summary of SEP implementation by IPTK.

No	Date	Activity	Participants
1	08/2007	First workshop to teach the SEP methodology in Sucre*	13
2	05/2008	Letter of agreement established with PROINPA on participatory methods	ND
3	08/2008	SEP workshop to promoters of local communities	78
4	2008 -2009	Implementation of SEP methodology	ND
5	2008-2009	Bimonthly feedback meetings and support for field implementation of SEP.	10
6	06/2008	Workshop to teach EPPR methodology	5
7	08/2008	Beginning of EPPR implementation in the field	ND
8	10/2008	SEP study tour in Chaco	2
9	10/2008 to 2009	EPPR reinforcement and feedback	6
10	2/2009	Reinforcement workshop on SEP and EPPR for Huaycoma technical staff	5
11	06/2009	Reinforcement to SEP implementation with technical staff and institutional Planning and Monitoring staff	8
12	07/2009	Formation of SEP and EPPR facilitators	6
13	7/2009	The experience of SEP applied in Huaycoma is socialized with other projects in the municipality of Ravelo.	ND
14	02/2010	Workshop on the analysis of SEP processes after the implementation in Ravelo	ND

Fidelity of the implementation

The SEP capacity building process was delivered by experts from PROINPA Foundation who had adapted the method to the Bolivian context. There were no significant changes or adjustments to the tools used in the SEP but there was necessarily some adaptation when the promoters implemented SEP in Quechua after having been taught the methodology in Spanish. There was adjustment to the implementation procedure in that a SEP committee was not formed. Instead, two or more promoters per community conducted the SEP process. The promoters are

community leader selected by the community who voluntarily take on the SEP in conjunction with their other activities which include socializing alternative technologies for production. The SEP forms were completed regularly and appropriately. The promoters fed the information back to the community and to the professional field staff.

In addition the written records of SEP were kept by the staff while the promoters did their own evaluations and kept their own records.¹⁰

Another participatory methodology, EPPR¹¹ was taught starting in 2008 for one week. The intention was to follow up with an on-line training but this was not carried out. The first module of EPPR, self-esteem development was implemented with the promoters in the same districts as the SEP. EPPR had content that reinforced the leadership training IPTK was already carrying out and it was enthusiastically received by promoters and professional staff. There is every likelihood that the EPPR self-esteem training and IPTK's leadership training had positive effects on farmer's self-esteem that cannot be attributed separately from the same effect achieved by SEP.

In summary, implementation of the SEP methodology was subject to adjustments that stemmed from the need to simplify it: volunteer promoters selected by the community leaders carried out the evaluation activities instead of a committee of local people; the promoters had to do their own verbal translation into Quechua after being trained in Spanish; the professional staff kept records of the evaluations and promoters carried out evaluations and kept their own records in the formats applied. SEP implementation was also commingled with leadership training and personal coaching (EPPR). Nonetheless there was a full appropriation of the principles of SEP that local beneficiaries of the services provided ought to evaluate the service provider as well as their own organizations and activities, providing corrective feedback that was taken on board by IPTK.

¹⁰ "Se hacen registros y los mismos lo maneja el monitoreador (técnico de la institución). Los promotores SEP realizan sus propias evaluaciones, de toda actividad que realizan (se han apropiado de la metodología)." (Ybarnegay et al.2010:6).

¹¹ EPPR refers to the Spanish acronym for "Empoderamiento de Pequeños Productores Rurales" -- in English, empowerment of small rural producers.

5.4. Outcomes of the implementation

5.4.1. Prerequisites for co-production: Learning, changes in attitudes and social capital formation

Self-respect and self-esteem of community members increased

Self-esteem improved as a result of using SEP. Farmers started evaluating the technician from IPTK and his performance. For example, producers were recorded as saying:

“Los cursos de capacitación de SEP nos están ayudando a mejorar nuestros conocimientos y a dejar nuestras timideces. Nosotros hacemos la calificación sin la presencia del técnico, después de la calificación recién llamamos al técnico para que vea los resultados y se saque una copia... Las comunidades también nos calificamos como fue nuestra participación en reunión y/o taller.” (Paz et al.2010:4)¹²

As the implementation of the method evolved and trust between actors was developed, the farmers understood the need to evaluate themselves as well and began evaluating their involvement and participation in project activities. In the more advanced phases of implementation of the method, people extrapolated the process to other spheres which included the organization itself, the municipality, or even their own households.

Social capital and capacity for negotiation increased among farmers

Community members perceived improvements in their capacity to engage with authorities in distant places. For example, informants stated:

“That our communities were far away used to be a problem in the past, but now we have overcome it because we can move more frequently to the city” and “Some women are not afraid to speak any more and now assume office, they are leaders. We have achieved better policies in our [rural] syndicate, now I think we are better guiding leaders” (Paz *et al.* 2010:4).

Mutual trust between actors increased

Through the use of SEP farmers changed their attitude towards the project from that of passive receivers to actively involved executants. Their trust in the technical field staff increased and they said there was a better flow of information regarding the initiatives delivered in their area.

¹² In English “The SEP courses are helping us improve our knowledge and leave our shyness behind. We evaluate events without the presence of the technicians. After the evaluation we call in the technician to see the results and to take a copy of them... In the communities we also evaluate how our participation in the meeting or workshop was.”

Farmers expanded their use of SEP to include their involvement with the municipal government and its development initiatives.

IPTK as an institution and its staff as individuals felt more accountable as a result of SEP. They were able to identify, understand and deal with their weaknesses regarding the processes of technology dissemination. Their group management skills improved, they were able to adjust planning processes to realistic terms convergent with local conditions. According to testimonies from IPTK staff they were more responsible with farmers and with avoided making promises they would not be able to meet. They admitted to having improved their organizational skills and their communication with farmers and communities.

At an intermediate management level IPTK valued the feedback provided by farmers as an input that allowed them to achieve the desired products and outcomes of the projects. The Planning, Monitoring and Evaluation unit within IPTK used the information generated by farmers to include qualitative details of execution in their reports.

Both farmers and IPTK staff referred to the improvement in communication and trust between them. Nowadays the work done by IPTK in the area is highly regarded by farmers.

5.4.2. Embeddedness for co-production: Institutional innovations, changes in rules, practices involving power sharing

The communities felt so confident and assertive in their use of the SEP and so they moved on from using the SEP in IPTK projects to applying it to other activities notably, in the Municipal Comité de Vigilancia.

Evaluating to improve!!

(Felix Quispe, 2010)

Once farmers learn about SEP and apply it, they shift from beneficiaries to Project owners. They begin evaluating technical field staff and their own performance. Later they evaluate technology and other initiatives. “Our greatest achievement was capacity building. We feel we can now evaluate and control projects. Now we can deliver SEP to everything: education, health, development... only this way activities in our community will improve” (Felix Quispe, 2010)

Farmers achieved the application of SEP in specific municipal projects such as public sanitation and construction of schools. SEP was also applied in the municipal “Vigilance Committee” and they attribute its good function to SEP. Now they wish to expand the application of the method to productive projects.

Before the implementation of SEP project reports by IPTK were prepared by technicians with their perception of achievement alone. Currently this has changed. The evaluations delivered by farmers are used to adjust training processes according to the suggestions farmers formulate. There has been a power shift. Farmers have realized that they can work horizontally and at the same level with development institutions (Gallardo Moyan, 2010). Local informant commented:

“Before we knew SEP there was no control, we didn’t control. Only in informal conversations you would say “this authority is not working well” and we formulated decisions. We complained to some authorities but they would yell and scare people. According to customary law we would control ourselves. The one who didn’t observe a customary law was punished or locked up; we would evaluate on our own way, without writing or recording anything... With SEP we have improved our understanding of how an organization is and should be. We have improved the results, before we had little control. Even if it is little by little, now we have some progress... Responsibility uptake has improved, there are more activities, there is more effort to have the institution and our selves move forward. SEP activities are making us strong... By customary law we had norms and regulations but they were misinterpreted and now we have new norms and regulations well designed thanks to IPTK. We have acquired new knowledge in management and control, and are now more formed and know more.” (Paz et al. 2010:4)

The benefits of SEP were perceived by IPTK and it has institutionalized the method. Before the implementation of SEP the Municipal Vigilance Committee lacked tools to operate an effective process of inclusion of communities in the planning, monitoring and evaluation of municipal initiatives. Once SEP was implemented by the communities working with IPTK, the Municipality perceived the usefulness of the method. SEP was introduced into the procedures of Ravelo’s Municipal vigilance committee and is being used regularly as a tool for its operation. This represents the implementation of power-sharing that was already incorporated in policy but that was not being implemented effectively.

5.4.3. Co-production: complementary inputs from different actors are combined in one or more of the following ways, if embeddedness or changes in roles and practices occur

Blended technology that is a fusion of complementary local and exotic technical knowledge

In this case there is no evidence of EP contributing to blending of local and external knowledge to produce novel technology or technical recommendations that were more beneficial to farmers than IPTK's supply of technology prior to SEP. This reflects the persistence of IPTK's original technology transfer approach to innovation.

Agricultural advisory service(s) that depend on the combination of unique functions performed by beneficiaries and traditional providers

Monitoring and evaluation is now defined as a joint responsibility of IPTK's professional staff and of the volunteer promoters. SEP and feedback from communities is used routinely as a part of the formal PM&E system. All professional extension agents have been required to listen to feed back from the promoters and to bring this feedback forward the staff member in charge of the PM&E office.

5.4.4. Benefits of co-production:

Improvement in the quality of service in terms of relevance of technology, training or advice to the end users, some of whom are co-producers



Photograph 2.
IPTK's donor agency representatives and M&E representative alongside farmers, receive feedback on evaluations delivered by farmers to project activities in Toroka – Ravelo, Bolivia.

Local informants commented that the quality of communication between them and IPTK professional extension staff had improved and that the staff was now planning more realistically and carrying out a higher proportion of their planned activities.

“The institution IPTK listens to our suggestions that emerge from the SEP evaluations” and we have better communications and information between us and IPTK...Recommendations that emerge from SEP evaluations are Heard and accepted by IPTK. After our analysis with the “Caritas” form and we give our recommendations, a copy is given to the extension agent so he can inform the institution” (Paz et al., 2010)

They also noted that they were better informed about IPTK projects and had more projects including with the Municipality. For example,

“With IPTK we have livestock, agriculture, and micro irrigation projects. Before we didn’t know about these projects. We were not informed of anything. Now we know and we participate” and “we were delayed and now we have projects with IPTK and the municipality. We want IPTK to continue supporting us to become better leaders.” (Paz et al.2010)

They also considered they were getting better services as a result of knowing how to use SEP to hold the mayor accountable for promised projects

“Now we can deliver SEP to everything: education, health, development... only this way can our activities improve in our community.” (Paz et al., 2010)

One of the important outcomes of the SEP is that it provided a realistic way of operationalizing the function of citizens/ beneficiaries to provide invigilation of the use of resources by the Municipality. Many farmers attribute the current success of the vigilance committee to the introduction of SEP as a tool to organize a systematic process that helps local people take account of the use of funds from the Popular Participation accounts in the municipality. Nowadays, communities effectively set priorities for municipal investments, plan interventions and monitor the execution of activities. Some of the activities being invigilated now are public sanitation initiatives and the construction of schools. They expect to expand this invigilation to other competences of the municipality such as education and health services.

Increased coverage of the service to include more of the end user population (e.g. poor farmers, women, ethnic minorities) some of whose members are co-producers

Local informants explained that they felt they could demand more and better support from the Municipality and hold the Mayor accountable:

“Now we demand the municipality capacity building projects and better work for example in public sanitations, school improvement; we are monitoring the quality of activities.” (Ybarnegaray et al.2010a)

Farmers have developed leadership capabilities and have strengthened their management skills through the use of PM&E, this has helped them participate more widely in decision making spheres beyond the IPTK projects, in the public sector and within second and third level traditional organizations. Better organizational policies have been developed in communities and community leaders affirm they are better leaders now (Porfirio Quispe, 2010) Given the current political context where spaces of participation are opening up for representatives of social movements, leaders from Toroca and Huaycoma are now interacting with Assembly Representatives¹³ and Departmental Counselors¹⁴ to provide feedback on the needs in the area.

Levels of inclusion have increased in general. Women who used to be very quiet in meetings and culturally stayed backstage now participate more, they are not afraid of speaking any more. (Paulina Esquivel, 2010). The change in attitude is perceived in every participant not only in leaders but in the communities as a whole. “Four years ago female farmers who came to meetings would not say a word now they speak up” (Oscar Miranda, 2010) Local informants affirmed that:

What stands out more is the case of progressive incorporation of women in the capacity building activities and other activities. This is increasing the self esteem “now some women are not afraid of speaking anymore and can assume roles” is affirmed with a lot of security.

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6. CASE STUDY. SEP WITH PROMYM IN CHACO, BOLIVIA¹⁵



Photograph 1.

Participatory evaluation of maize varieties by farmers in Chaco, Bolivia.

6.1. Background information

This case involves the implementation of SEP¹⁶ by PROINPA in PROMYM¹⁷ during the period 2007 – 2009 in the municipalities of Yacuiba, Caraparí and Entre Ríos in the department of Tarija. The case study looks at the process of implementation and its results to understand how SEP contributes to the coproduction of agricultural technology and advisory services.

6.2. Context of the SEP application

6.2.1. Background

The PROINPA Foundation is a Bolivian research NGO that has worked on technological innovation in the agricultural sector for over 20 years. PROINPA's objectives are to promote conservation and sustainable use of genetic resources, contribute to food security and sovereignty, and contribute to competitiveness of nationally prioritized crops. For this purpose PROINPA works at national level through four regional offices based on different ecological regions of the country. One of

¹⁵ Version March 10

¹⁶ SEP stands for "Seguimiento y Evaluación Participativa" which literally translates as Participatory Monitoring and Evaluation. The literal translation to English is not used in this case because it refers to a specific methodology that uses SEP as a general framework.

¹⁷ "Programa de Investigación en Maíz y Maní", which stands for Research Program in Maize and Peanuts. It is part of PROINPA's commercial crops program in Tarija.

these regional offices is located in the Chaco region and focuses strongly on research and technological assistance for extensive commercial crops such as maize and peanuts.

In this case SEP was implemented in the area from 2007 to 2009. PROINPA's objective was for SEP to provide farmer organizations with a tool to enable them to articulate horizontally with the service provider.

6.2.2. The macro context

Local Prefecture-level election promises that were not met had a determining effect on the outcomes of SEP in this case and so it is necessary to paint a picture of the local government context. In the period 2007-2009 Bolivian local government expenditures at the level of the Prefecture had to be approved by the central government. This changed due to the process of decentralization that took place in the country upon the approval of the new constitution in January 2010. At this time, departmental governments passed from being "Prefectures" that depended on the central government to "Governations" of autonomous nature. Nevertheless, the organization of technical assistance service provision stayed basically the same under the Governors as it was under the Prefects. Prefects (now Governors) have the mandate of providing agricultural advisory services through an office called the "Secretaría de Desarrollo Productivo". Priorities for technical assistance are defined by the Prefecture through consultation processes with elected departmental councilors. Clusters of Municipalities in a Department are represented by a departmental councilor. Prefects or Governors are elected by the voters in every department and therefore in electoral periods they make election promises including promises to address farmers' demands for technical assistance to ensure voter support.

What this meant for technical assistance in the Chaco in 2007-2009 was that election promises had been made to farmers in 2005¹⁸ that depended on the Prefect's approval for budget and execution. Professional extension agents who worked for PROINPA could not authorize expenditures to meet farmers' expectations based on election promises to deliver agricultural machinery to farmers even though the machinery was also a commitment in the PROMYM budget.

SEP was implemented in the PROMYM program that was financed by the Prefecture and executed by PROINPA. The Program involved two projects, one on maize and the other on peanuts, and had research and development agendas developed out of consultation with farmer

¹⁸ In 2005 the first Prefectural elections of the history of Bolivia took place. Before this period of time Prefects were appointed by the central government.

representatives from different producer organizations. These organizations had therefore identified specific technology development objectives and technical assistance objectives.

The program proposed the introduction of new varieties of maize and peanuts using participatory selection of varieties during different stages of the genetic improvement process. Native germplasm was to be collected over three municipalities of the Chaco region and new varieties for human and animal consumption were to be developed. To improve production, seeds from the new varieties were to be produced by farmers with the support of PROINPA technical staff. Also, to reduce the adverse effects of the indiscriminate use of chemicals for fertilization and pest control, new organic inputs were to be tested and validated with farmers to generate a new set of recommendations adapted to local conditions.

Strengthening producer organization for marketing purposes was also a central goal of the program. New marketing alternatives were analyzed through participatory knowledge fairs where producers made study tours in search of new ideas to improve market linkages. The program included the provision of new equipment for postharvest treatment and transformation.

6.2.3. The main actors

Project beneficiaries

The Chaco region, in the southern extreme of Bolivia has a diverse population that includes native groups such as the Guarani and the Mataco. There are also large groups of mestizos¹⁹, migrants from Quechua and Aymara native groups from the highlands and some foreign groups like the Mennonite. It is an area with high diversity in poverty levels and a lot of resources available from taxes from the petroleum fields. Maize and Peanut producers vary in size from large producers with hundreds of hectares to small producers that have a few hectares. Therefore technological demands vary depending on the size of the land cultivates.

Large scale producers often have advanced technology and equipment for production, harvest and postharvest treatment while small producers usually use traditional knowledge and equipment. PROMYM did not target small farmers specifically and improving the inclusion of small farmers was not an explicit objective of the program as improving productivity and income was. PROMYM aimed to reach 385 direct beneficiaries from the municipalities of Entre Ríos (60), Caraparí (60) and Yacuiba (225). (PROINPA, 2006).

¹⁹ Mestizos are people of mixed background from any different combination of ethnic groups.

The service providers

PROINPA is a research and development institution committed to inclusion of the poor in technology innovation processes. Since 1993 PROINPA began seeking for alternatives to include local perceptions to develop the research agenda. Some of the first approaches to the co-development of technology began when PROINPA was still a National Research Program²⁰ through capacity building provided by CIAT Colombia for testing and validating Participatory Technology Evaluation tools and CIALs. These participatory processes along with others such as Farmer Field Schools were progressively included in the institutional research and development agenda. Later on during the execution of the FOCAM project financed by DFID, CIAT and PROINPA partnered for the adjustment and validation of the SEP methodology in Bolivia. This method tested with different institutions in Bolivia was also progressively internalized and later institutionalized in PROINPA.

Research and development processes on Maize and Peanuts are carried out by PROINPA in the Chaco region through the support of different donors. By 2006 the Continuous Innovation Program (PIC) financed by COSUDE, leads an initiative that seeks to articulate different actors working on maize and peanuts to act as a platform that sets priorities and leads research and development processes in the Chaco region. This platform promoted by PIC – COSUDE was also supported by PROINPA whom was able to capture demands identified to develop a research and development program financed by the former Prefecture.

The Continuous Innovation Program (PIC) financed by COSUDE is a research program that emerged in close collaboration with PROINPA in search of new institutional arrangements that focus research and development processes on the needs of the agricultural technology end-users. For this purpose they set up a series of case studies in different regions of Bolivia to derive lessons that will enable the development of a model. One of these cases was the platform on Maize and Peanuts in Chaco.

6.2.4. Rules in use

In this section we describe aspects of the program as they were before the initiation of SEP and that could potentially be expected to change as a result of use of SEP. In the PROMyM program these aspects include service provision, technology, farmer organization and monitoring and evaluation.

²⁰ PROINPA formally began operating in 1989 as a Potato Research Program supported by COSUDE and the International Potato Center operating as part of the Bolivian Institute of Agricultural Technology (IBTA). In 1998 IBTA was closed by the Bolivian government and PROINPA became a private Foundation continuing with its research and development work. (Gandarillas et al., 2004).

Service provision

PROINPA's professional extension agents have a background in agriculture and are usually local in origin for this is a trait highly valued by producers. PROMYM and SEP started out with a positive attitude of mutual respect between farmers and extension agents because of PROINPA's prior history of using participatory methods in the country.

The technology diffusion component of PROMYM was designed to include individual technical assistance. At the beginning of the program, professional field staff in Yacuiba was to support 15 farmers in 5 communities (a total of 75 farmers). In Caraparí and Entre Ríos, further away from the central office, field staff was to support 20 farmers in 3 communities (a total of 60 farmers). By the time the SEP was initiated, PROMYM had almost completed its first year of operation and individual technical assistance had already proved to be impractical. As a result close to half the farmers were not receiving visits.

The service provision extension model included an intention to co-develop technical recommendations through Participatory Technology Evaluation on varieties of maize and peanuts, and organic inputs.

Technology

The main agricultural production in the Chaco region is maize and peanuts. Unfortunately yields of these crops decrease constantly due to continuous degradation of native and introduced varieties, progressive loss of soil fertility, plagues and diseases are also affecting yield.

The lack of storage infrastructure, postharvest management equipment and or transformation equipment, forces small farmers to sell their production with no added value and when the market is saturated, to accept low prices.

Farmer organization and empowerment

Small and medium producers are weakly organized if organized at all and have difficulties negotiating their production after harvest in Chaco. Farmer organizations can be of four different types. Local community organizations or "Sindicato Agrario" usually established in communities of immigrants of quechua origin, divisions of the "Asamblea del Pueblo Guaraní" (APG)²¹, "Organización Territorial de Base" (OTB) as a form of organization necessary to obtain

²¹ APG is the Assembly of the Guaraní people in Bolivia. This institution has local leaders (Burubicha) in Guaraní communities that represent them in the national assembly of representatives.

representation in municipalities²², and producer organizations formed around productive issues. Sindicatos Agrarios, communal representations to the APG and OTBs have little involvement in productive issues and rather have political purposes. Only the producer organizations have specific productive purposes. To participate in PROMYM farmers didn't need to be formally members of a particular organization yet organizational formation or strengthening was one of the project objectives.

In the Chaco region there is diversity in the ethnic origin of the population and poverty levels vary according to size of land tenure and use of technology. Female participation varies usually due to internal factors such as education and family care issues, yet there are some women's organizations assuming some leadership in small scale production initiatives.

Monitoring and Evaluation

In the Chaco community organizations have their own methods of monitoring progress of activities. Sindicatos Agrarios and communities articulated to the APG are usually less formal or have less structured processes of monitoring and evaluation. OTBs have a more formally structured process of accountability which usually includes a written report of implemented processes or evaluation findings, yet it lacks a structure for the inclusion of the perception of participants as a whole. Producer organizations usually visualize monitoring and evaluation of processes through a financial lens. This often includes a financial report of executed activities. In all cases processes are neither systematic nor structured and rarely include the participation of all the members.

The monitoring and evaluation process of PROMYM within PROINPA was based on the log frame model and included other elements of organizational management. Progress reports were usually written by staff in charge of delivering activities and rarely included local perception. The culture of participation and inclusion was present in institutional processes and was a principle for the development of institutional initiatives, but monitoring and evaluation through participation was still a concept under construction based on previous initiatives in the region.

Before SEP was implemented most farmers rarely knew the detail of the development initiatives carried out in their communities, and would therefore rarely manifest any perception of

²² The OTB is the official type of organization needed to articulate with municipalities in the processes regulated by the Popular Participation Law in Bolivia. Nevertheless, an indigenous or other local needs only to formalize its status to be recognized as OTB. Where no organization exists for example a neighborhood in a town or a community with no history of organizations the OTB is easily recognized by the municipality.

acceptance or complaint regarding the execution. A farmer even mentioned that they used to be told that projects came with free technical assistance so they shouldn't and/or couldn't complain. (Lopez, 2010).

6.3. Implementation of the SEP methodology



Photograph 2:

Farmer expressing her dream or objective for the future as part of the group. Chaco - Bolivia

6.3.1. Motives for participating in the SEP application

One of the strategic objectives of PROINPA was to promote co-development of new technology and promote higher rates of adoption of new technology. Through this process the institution expected to achieve impact on poverty reduction and development that would be easily recognized by both donors and technology end-users. For this purpose PROINPA's management introduced a new project protocol that institutionalized participatory technologies for priority setting, research, monitoring and evaluation.

SEP was introduced formally as part of this project protocol with the following specific objectives:

- Strengthen the interaction among actors that participate in the maize and peanuts productive chains to produce a strategic plan that defines demands for research and technology transfer.
- Have a body of farmers and other actors organized and strengthened to set priorities for technology innovation, delivers monitoring and evaluation of initiatives and works collectively to address demands.

- Provide farmers and farmer organizations with a tool to aid planning, monitoring and evaluation of joint initiatives with service providers.

6.3.2. Timeline and roles

SEP was not new to PROINPA or to the extension service in Chaco when it began this implementation during 2003-2006 the FOCAM project delivered a sequence of capacity building on the SEP method in Chaco where a set of pilot implementations of SEP took place from 2005 to 2006. As a result PROINPA's management at national level decided to undertake a process of institutionalization of the SEP method in all of its regional offices. For the Chaco office, this implementation represented an opportunity to strengthen the capacity of local staff and lead the process of institutionalization of SEP.

The PROMYM was a four year program that began implementation in Chaco in November 2006 and was expected to end in 2010. Before SEP was initiated in PROMYM, demands for research and technology diffusion were identified with the participants in the PIC platform that included institutions from the public and private sector in the region, and farmer producer organizations working with maize and peanuts. These demands were identified by the members of the PIC platform through a participatory diagnose.

In 2007 a sequence of capacity building events were delivered by experts from PROINPA²³ in Chaco and the PIC initiative became an opportunity to implement the method.

A series of events were held where different actors participated in the first phases of a SEP implementation. The PIC platform started as an assembly of institutional representatives that unfortunately changed often as they were assigned by institutions upon the basis of availability of time. This particularity reduced the level of commitment of the actors with the activities programmed by the platform reducing its operation progressively until it finally ended. Nevertheless, the demands identified by the PIC platform were pulled together by PROINPA to design and negotiate a project with the Prefecture. Innovation projects on maize and peanuts were negotiated with the Prefecture and included as part of the design, the implementation of SEP by farmers to project activities.

²³ Experts from PROINPA were former CIAT staff based in Bolivia. These 3 researchers were hired by PROINPA once the FOCAM project concluded and were responsible for the execution of the Cambio Andino Program where PROINPA was a partner in Bolivia.

Table 6.1. Timeline Summary of SEP implementation in Chaco.

No	Date	Activity	Participants
1	11/2006	Beginning of the PROMYM program in Chaco	ND
2	11/2007	First workshop to teach the SEP methodology	17
3	2008-2009	Implementation of the SEP methodology	ND
4	2008-2009	Bimonthly feedback meetings and support for field implementation of SEP.	10
5	06/2008	Workshop to teach EPPR methodology	4
6	08/2008	Beginning of EPPR implementation in the field	ND
7	10/2008	SEP study tour in Chaco	23
8	10/2008 to 2009	EPPR reinforcement and feedback	6
9	11/2008	The first complains on the delay of the machinery began	ND
10	6/2009	Second reinforcement workshop on SEP and EPPR in Chaco	4
11	07/2009	Formation of SEP and EPPR facilitators	3
12	07/2009	Repeated visits of farmers to the Prefecture to complain for the delay in machinery	ND
13	02/2009	Workshop on the analysis of SEP processes after the implementation in Chaco.	5
14	11/2009	Application of SEP stopped along with activities from the PROMYM program in Chaco	ND

The SEP implementation within PROMYM continued until PROMYM's implementation was discontinued due to lack of funding in 2009. After a year of inactivity, in 2010 PROINPA was able to canalize new funds from other donors and to re-start agricultural innovation activities in maize and peanuts, avoiding the issue of machinery that had been the axis of conflict, but continuing the co-production of technology and recommendations using Participatory Technology Evaluation in varieties and inputs. Group technical assistance and organizational strengthening for market articulation of small producers also continued along with SEP.

The process of SEP implementation followed the sequence presented below and summarized in Table 1:

1. By the end of 2006 The PROMYM program financed by the Prefecture began operating in the municipalities of Yacuiba, Caraparí and Entre Rios.
2. The first four day SEP workshop was held where PROINPA's field staff, other members of public institutions and a couple of leaders from farmers producer organizations attended. Participants received practical tools and were taught the SEP methodology as presented in the protocol.

3. From the beginning of 2008 to 2009 PROINPA's staff began implementing the SEP methodology in the municipalities of Yacuiba, Caraparí and Entre Ríos. One technician in every municipality met with farmer organizations to socialize the SEP methodology and form a SEP committee with volunteer farmer organization members. At this point SEP committees were established and began implementing the method through the evaluation of every activity delivered by the technical field staff as part of the PROMYM program. The activities evaluated following the SEP protocol included participatory evaluation of maize and peanut varieties, organic input trials, field days and classroom sessions for teaching improved practices. To evaluate individual technical assistance to farmers the SEP committee and the farmer organization had a group meeting in which they filled in the SEP formats to evaluate the service provided by the technical field staff to individual farmers. Right after every event that was evaluated the SEP committee socialized the results with the technical field staff involved. They shared the results of the evaluation and tried to negotiate agreements to improve performance in the next event. As a result a continuous feedback started from the farmer association members via the SEP committee on the day to day performance of the technical field staff. For example in each community the field staff member has to give at least one training activity a month and this was evaluated by SEP.
4. After three months of implementation, bimonthly visits by one of the PROINPA trainers began and continued during the rest of 2008 and the whole of 2009. In each visit the trainer met with PROINPA's field staff, asked about problems and difficulties and tried to collaboratively find solutions to some bottlenecks in the process. There were also field visits where one or two communities were visited. Where SEP was being started the trainers supported the field staff in the implementation of the SEP planning and committee formation. Where SEP was already being implemented the trainers observed and co-facilitated the evaluation delivered by the SEP committee. This meant that all three of the PROINPA field staff received at least one visit from PROINPA's trainer.
5. In June 2008 Corporación PBA from Colombia²⁴ conducted a one week workshop to teach people how to apply the EPPR methodology. The workshop included the different partners of Cambio Andino in Bolivia and all three of PROINPA's field staff applying SEP participated in the event. No farmer association members participated.
6. In August 2008 the implementation of the first part of EPPR began in the field. Only the first part of the EPPR method was applied by PROINPA's field staff. This involved

²⁴ A Cambio Andino Partner in Colombia.

introducing group dynamic exercises into the meetings that the field staff was holding with the farmer associations. These group dynamic exercises are designed to enhance self-esteem, communication skills and sensitivity to social difference like gender and ethnicity. For the remainder of EPPR there was supposed to be on line training but due to connectivity difficulties in Bolivia this never occurred.

7. In October 2008 there was a regional study tour visit organized by Cambio Andino. Partners from Colombia, Perú, Ecuador and other partners from Bolivia. This motivated the farmer association members and made them feel that they were doing something of significance.
8. Since October 2008, the bimonthly visits that were being done to reinforce SEP, PROINPA trainers included reinforcement for EPPR group dynamic exercises.
9. In late 2008 the first complains on the delay of the machinery compromised by the Prefecture began. Yet people were patient and continued formulating suggestions and observations to PROINPA's technical staff.
10. After 7 months of application of the SEP methodology, there was a second workshop with PROINPA's field staff to review the SEP and EPPR methods and find alternative solutions to problems encountered.
11. In July 2009 field staff from partner institutions in Bolivia including the PROINPA's staff working in Chaco came together in Sucre for a one week course on facilitation techniques. The trainers in this course were the same expert staff supporting the process in Chaco. The objective of the course was to have people with field experience in the implementation learn how to teach the method to other technical staff.
12. From mid 2009 farmers made repeated visits to the Prefecture to complain for the delay in delivery of the compromised machinery. Attendance to meetings started to fall off gradually from this point in time. When field staff went to hold a training event they heard the continuous complain about the machinery. By the end of 2009 it was clear to PROINPA that there no funds forthcoming from the Prefecture for the machinery or for the salaries and operating costs of technical assistance. This caused PROINPA to stop field visits and this ended the SEP process to the PROMYM activities.
13. At the beginning of 2010 the PROINPA trainers held an analysis workshop with PROINPA's field staff in Chaco. The analysis worked exhaustively through every step of the methodology in order to understand how it was applied and if there were any adjustments or modifications made to the initially proposed protocol. The conclusion was that there were no changes to the step by step process or to the tools. The changes proposed were the use of language and examples adapted to the local context.

14. The application of SEP by committees from farmer organizations stopped at the end of 2009 until a new project delivered by PROINPA began by the end of 2010. This project is not considered as part of this study.

Fidelity of the implementation

There were no significant changes or adjustments to the SEP tools used during the SEP implementation. The capacity building process was delivered to four PROMYM extension agents by expert trainers from PROINPA Foundation. One of the professional extension staff had also previously worked with the FOCAM project validating and adapting the method in Chaco. PROINPA's expert trainers provided support for the implementation of the method with field visits initially in Yacuiba and Carapiri. Trainers did not visit local staff in Entre Rios where the most experienced (ex FCAM) professional took charge of SEP implementation.

Throughout project execution some changes in professional extension staff occurred but efforts were made to build the capacity of the new staff either through capacity strengthening by PROINPA experts or through support from more experienced colleagues. No significant changes were made to the method or its tools during implementation.

Motivation at the beginning of all SEP implementations is often moderate. Farmers attend the SEP session after a community organization's meeting for other purposes, and at the beginning of SEP they don't perceive easily the concrete benefits. After they have evaluated the performance of the extension staff in the first two sessions, and the staff responds by trying to improve their performance, enthusiasm for SEP starts to go up. In this case, when SEP began implementation farmers became aware for the first time of the intention of PROMYM to provide individual extension to farmers that was not being fully delivered. This dissatisfaction and the corrective measures taken by extension staff enhanced the value of SEP to farmers. The subsequent frustration with obtaining machinery did not cause SEP methodology to be altered, it simply showed that SEP had thrown up a problem that could not easily be remedied.

6.4. Outcomes of the implementation

6.4.1. Prerequisites for co-production: Learning, changes in attitudes and social capital formation

Self esteem of farmers

SEP stimulated farmers to demand fulfillment of election commitments. The experience of using their own initiative strengthened farmers' self esteem. For the first time, PROMYM's operational plans were widely shared with farmers when SEP was started. As a result of SEP evaluations, members of the farmers' organizations became familiar with details of PROMYM's implementation and understood the commitments assumed by the extension field staff. This is one reason why later on as a result of SEP they began demanding the fulfillment of election promises to provide farm machinery made by the Prefecture.

How we all became actors!

(Daniel Saldaño – 2008)

Farmers mentioned that capacity building at the beginning tended to be boring. They were tired of the large pieces of paper where technical staff wrote recommendations. When meetings were held at night you could see farmers sleeping. Receiving this feedback technical staff asked farmers what the best way to work the recommendations would be and farmers suggested movies. Being technical recommendations an outcome of co-development between farmers and technical staff, they were unable to find movies in the market. Evaluation results and recommendations were fed back to decision makers in PROINPA and technical staff was provided with a video camera to make their own movies. Technicians and farmers became actors and mounted a movie with the technical recommendations for management of chemicals in peanut production. After the movie there was a session of analysis that had farmers interact judging good and bad practices in the movie. This movie became a success in all communities. The message went through for farmers were awake during the screening trying to find people they knew and commented long after on how important it was to apply the technical recommendations.

Farmers and local organizational leaders who worked with SEP with the PROMYM were later able to participate in other decision making spaces like the municipalities or other organizations. One of the best examples of self esteem building and enhancement of female participation is that of Mrs. Natividad Ruiz who leads CEMFRAQ²⁵ a local women's organization. She has introduced SEP in CEMFRAQ's activities and through the organization they apply the method to every initiative

²⁵ Centro de Mujeres Fray Quebracho.

delivered in their community. So far they have evaluated agricultural initiatives as well as health and education initiatives delivered by public actors in their community thus improving the results of these initiatives.

Mutual respect among actors

As the implementation of the method evolved and trust between actors was developed, the farmers understood the need to evaluate themselves as well and began evaluating their involvement and participation in project activities.

Farmers helped us be more efficient!

(Reynaldo Cruz – PROINPA)

At the beginning of the project every technician in the field was assigned with a certain amount of work. We were responsible for providing technical assistance to 15 farmers in each community and our work extended over 5 communities. This was really too much because sometimes we couldn't achieve the number of visits expected and we were being evaluated negatively by farmers who could not be supported. Then we shared our difficulties with farmers and they helped us find a solution. Together we decided to hold small group meetings for technical assistance. Farmers that lived close by organized themselves to meet and receive technical assistance together.

Farmers' capacity for negotiation and organization strengthened

Complaints about delays in compromised machinery were formulated by the farmers and were passed from the farmers to the professional staff via SEP. The professional staff communicated to the PROMYN manager and he tried to get the attention of the Prefecture with no results. The farmers themselves sent representatives directly to the Prefecture expressing increased self-confidence and capacity for negotiation because they took along the evidence from the SEP to support their case with the Prefecture.

6.4.2. Embeddedness for co-production: Institutional innovations, changes in rules and practices that involve power-sharing

Embeddedness was not achieved in this case. Although there was power-sharing between farmer organizations and the extension staff that made it possible for SEP to provide corrective feedback

to the professional staff who responded to positively, there was conflict and struggle for power at the Prefecture level of decision making that fundamentally jeopardised embeddedness.

The SEP process implemented in PROMYM went well while the evaluation only dealt with local performance issues. Conflict arose when the evaluation and suggestions reached other decision making levels that were not receptive to change.

The use of SEP had enhanced farmer's capacity to take action for change as is evident in the discontent expressed by farmers with PROMYM and their decisions to reject the machinery delivered by the Prefecture and demand its replacement.

There was a degree of power sharing when the extension agents and the PROMYM project manager accepted that their performance should be evaluated by farmers and that they should respond with corrective measures. As a result, top-down practices that left many farmers unattended by extension were modified. For example, farmers proposed and achieved a change in the method for technical assistance that enabled more farmers to receive technical assistance.

Despite the enhancement of collective power of farmers, the Prefecture continued unchanged. The Prefecture insisted on delaying the machinery and providing it extemporaneously and without the expected technical recommendations. The Prefecture was expecting farmers to take up machinery that came over a year late and was not useful for them.

When it became more apparent that the Prefecture were not responsive to feedback from SEP or to farmers demands, frustration started to spread and to contaminate the whole SEP process, leading farmers to express lower levels of confidence in the usefulness of SEP in 2010 than in 2008 (Paz, et al. 2011). Nevertheless, it is important to highlight that the most important outcome of SEP implementation in this case is conflict that made evident the lack of accountability of the Prefecture. The resolution of the conflict goes beyond the use of SEP and is still being sought.

We will not take this equipment!

“The equipment for maize transformation was due and the Prefecture kept delaying the funds. People were upset and they started to complain all the time. The SEP formats that the communities filled in after every activity would be full of complaints. It didn’t matter what activity we were doing... weather it was organic input testing or seed production...it really didn’t matter. After every session we would get a bad evaluation, the reason would always be the delay in the equipment and the suggestions to have it as soon as possible. (Cruz, 2011)

After some time farmers decided to go and speak to PROINPA’s regional coordinator in Yacuiba because answers technical staff gave no longer satisfied them. The regional coordinator explained the same... that the Prefecture was not giving the money for the purchase so people decided to go and speak with the Sub Prefect. Unfortunately this didn’t work either because the money didn’t arrive

On May 14 2009 the Prefecture along with COSUDE and PROINPA tried to hand over the compromised machinery on a big concentration where many authorities were invited. Farmers rejected the machinery because it didn’t meet the expected technical requirement. Farmers specified the particular technological traits that were not met by the equipment and gave time to the manufacturer to correct these differences until January 2010. (PROINPA, 2009.

6.4.3. Co-production

Blended technology

PROMYM in its design included the co-production of technical innovations and recommendations using participatory technology evaluation methods (PTE²⁶). SEP was introduced during this time but there is no evidence of a positive or negative effect of the SEP on participatory technology development.

Complementary functions performed to provide a service

At the departmental level of local government, the persistent conflict in the relationship between the Prefect and the PROMYM project manager, the professional staff and the farmer organizations meant that complementary functions could not develop. The pre-existing hierarchical structure of decision making and control over resources remained unchanged despite criticism via SEP and attempts made by PROMYM and the farmers directly to change this.

²⁶ Participatory Technology Evaluation.

Established farmer organizations and their local leaders completely dropped SEP out of frustration. Newer farmer organizations on the other hand, understood that the difficulty was not in the SEP methodology but in the Prefecture; thus two new farmer organizations being formed in the communities of Tatarenda and Las Abras included in their statutes SEP as the methodology for systematically planning, monitoring and evaluating organizational activities and leadership. In this case there was also power sharing, for members of the organizations gained the right apply SEP within the organization.

However, these changes were not sufficient to enable the farmers' organizations and the direct service provider, PROINPA to put in place complementary functions that would lead to an improved agricultural advisory service. In this case there is no evidence of co production of technical assistance services.

6.4.4. Benefits of co-production

Improvement in quality of services

Co production was not achieved in this case. SEP feedback made evident some deficiencies in the methods used for communication that had the potential to improve the quality of service. As a result field staff began using other new strategies such as videos, group dynamics, and others that made communication more effective. But these changes were marginal compared to the frustration with the machinery.

Inclusion

As a result of SEP PROINPA's technical assistance service in Chaco changed from individual technical assistance to group attention. SEP made evident the dissatisfaction of farmers in communities where the extension agents never made a visit. The PROMYM proposal initially considered 225 farmers being supported in Yacuiba, 60 in Caraparí and 60 in Entre Ríos (PROINPA, 2006) but this target was not being met. Farmers who were not receiving technical assistance were critical and this was channeled via SEP. Field staff manifested the difficulties they had. Both parties negotiated and decided to implement group technical assistance. This measure improved the outreach of technical assistance and instead of reaching 345 farmers, PROMYM was able to reach 423 farmers in all three municipalities, thus being more inclusive (PROINPA, 2008).

6.4.5. Prospects for the future

The use of SEP catalyzed the emergence of conflict. It made more evident the lack of accountability of the Prefecture. The use of the methodology also contributed to farmers' self

esteem, individual and group capacities to complain and negotiate with the Prefecture. Yet the conflict that emerged was not static. Farmers continued complaining and at the time this document was elaborated they were negotiating the acquisition of some useful equipment with the reduced funds granted by the Prefecture.

It is also important to highlight that the conflict over election promises with PROMYM is not a solitary issue that affected the case study. It is a much bigger issue that includes most of the activities and initiatives delivered by the Prefecture. The former Prefect has fled to Paraguay and has been formally accused of financial fraud. This has affected all transfer of funds from the Prefecture, not only PROMYM. In this framework PROINPA has been covering operational costs of PROMYM since mid-2009 until that created a financial deficit by the end of 2009, when they stopped operation completely. Institutionally PROINPA decided to continue working in the area and began a new development project in June 2009. This Participatory Technology Innovation project considered a few of PROMYM's communities and new communities in Yacuiba. Unfortunately, the financial shortfalls created by PROMYM made further work unviable. Therefore the program expects to close operations in the area by July 2011.

6.4.6. Lessons and suggestions for improvement

One important issue to consider when deriving lessons from the application of the participatory methodology in this particular case is the conflict that emerged from the delay in the machinery. The most important issue there is that SEP can highlight underlying power conflicts. When applying this particular participatory methodology one has to be prepared to be subject of evaluation and must be ready to respond to demands and suggestions. In this case, great efforts were made by the service provider to open up spaces of interaction with farmers but how this would interact with of higher levels of decision-making had not been considered. The unwillingness of the Prefecture to meet election promises was only made evident subsequently and then it contaminated the whole SEP process. This case illustrates that if SEP and beneficiary participation is to be considered seriously, then institutions and decision makers must be ready to accept change and to be accountable.

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7. CASE STUDY: SEP WITH PRODII IN NORTH POTOSÍ, BOLIVIA



Photograph 1.

PRODII's extension staff at a SEP reinforcement event. Concepts of SEP are reviewed after planning the areas of intervention in North Potosí, Bolivia

7.1. Background information

This case involves the implementation of SEP²⁷ that started on a natural resource management project and expanded to include all the agricultural service provision delivered by the NGO responsible, PRODII (Programa de Desarrollo Integral Interdisciplinario) situated in the North Potosí Region of Bolivia. Pilot implementation of SEP started in 2004, evolved to full institutionalization in 2007 and is continuing today.

7.2. Context of the sep application

7.2.1. Background

PRODII is a Bolivian local NGO established by indigenous representatives and professionals from the Ayllu²⁸ Uma Uma in North Potosí. They started working in 1998 with a holistic perspective of development for indigenous communities in the region. The case study was conducted on the application of SEP in the municipalities of San Pedro de Buena Vista and Pocoata with the implementation of SEP in three producer Associations. With these associations PRODII was working to promote integrated development through the implementation of a project for the recovery and management of agro biodiversity in North Potosí, financed by USC Canada.

²⁷ SEP stands for "Seguimiento y Evaluación Participativa" which literally translates as Participatory Monitoring and Evaluation. The literal translation to English is not used in this case because it refers to a specific methodology that uses SEP as a general framework.

²⁸ The Ayllu is a traditional indigenous organization that dates back to the Inca Empire. It was established to aggregate communities in order for them to manage natural resources and pay tributes to the empire. Later on the colonial period also based the tribute collection in this ancient form of organization.

In this case SEP was implemented in three Associations from 2007 to 2009 to provide farmer organizations with a tool that enabled them to articulate horizontally with the service provider.

7.2.2. The macro context

The basic principles and policy for agro biodiversity use and development under which PRODII operates are defined by the National Development Plan and INIAF, the newly formed- national agricultural research institute. In 2003 the Bolivian government launched the National Development Plan called “to Live Well”. This development plan rests on the Andean principles of solidarity and reciprocity. One of philosophical pillars that guide the plan is to base development on the use of participatory methods that rescue local knowledge and develop appropriate technologies with a blend of local and external knowledge. Even though the importance of participation is formulated in the national development plan, in practice, there is little familiarity with participatory tools and methods among the multiplicity of NGO service providers expected to respond to this call. (Government of Bolivia, 2006). Furthermore, the national development plan emphasizes the need to recover and preserve local traditional knowledge and integrate it with scientific knowledge for the development of appropriate technology. The need to preserve the basis of natural resources and biodiversity is also highlighted in the plan as the basis for food sovereignty as an ultimate goal.

The *Instituto Nacional de Innovación Agropecuaria y Forestal de Bolivia* (INIAF – Bolivia) was created in 2008, as part of the change process impulsed by the government, as an operative office in charge of innovation and technical assistance service provision. It is in an early stage of formation but is being developed to address research, validate and adjust technology based on the integration of local knowledge and conventional scientific research, through the use of participatory methods such as Farmer Field Schools and Farmer-to-Farmer extension among others. INIAF is also the custodian of biodiversity, for it is in charge of the management of the national gene banks and in charge of integrating diversity to generate alternatives that will ensure food sovereignty in the future. Eventually INIAF aims at guiding agricultural advisory services provided by NGOs like PRODII.

However, PRODII did not at the time of writing, have an established working relationship with INIAF. This gave PRODII a high degree of autonomy in choosing methods and the types of innovations it promotes to farmers and at the same time, made it a promising case for producing lessons that could inform the use of participatory approaches.

Being a rural development NGO focused in agriculture that was formed by educated indigenous people from North Potosi, PRODII has a high level of commitment to its communities of indigenous peoples and one of its goals is to include the most vulnerable social groups in their programs. Before implementing SEP, PRODII had experience working with CIALs, a participatory marketing methodology (CEFE) and other participatory methods

PRODII's work is concentrated in the municipalities of San Pedro de Buenavista and Pocoata where 98 percent of the population is defined as poor by the national census based on an index of basic needs (INE, 2001). According to UNDP the human development index in North Potosí is lower than in the rest of the country: out of the 314 municipalities in the country San Pedro de Buena Vista is ranked 307 and Pocoata 292 (UDAPE 2008). Since San Pedro de Buena Vista and Pocoata amongst the poorest municipalities in the region and in the country, they are characterized by high food insecurity due to low agricultural production and intense natural resource degradation.

In San Pedro de Buena Vista, other rural development institutions that work for development are World Neighbors, CETHA Chiro Q'asa and a division of the municipality. In Pocoata only the Municipal project Chayanta Agropecuario financed by international cooperation are present. In both municipalities there is very little evidence of development intervention. The Municipalities have such a small population and low tax base that they have little funding of their own to finance the provision of agricultural advisory services. In addition, the Mayors' priority for using funds from the central government was provision of infrastructure (roads, bridges, schools, health centers, sports field).

7.2.3. The principal actors

The project promotes the co production of knowledge regarding agro biodiversity conservation and joint provision of agro-biodiversity conservation services by training farmer custodians. The main objective of the project in which SEP was implemented is to recover and manage local agro-biodiversity in North Potosí sustainably. The project aims to systematize the actual and potential uses of local agro biodiversity for on-farm income generation to support its conservation. The project's strategy is to set up formal opportunities for reflection within local communities to systematize local knowledge, blend it with external technical knowledge and so formulate materials that can be used to train farmer custodians and shared more widely with other producers. In this way the project hopes to promote the use and conservation of biodiversity, and

to develop the capacity of producers and communities to recover, manage and generate income through the use of agro biodiversity.

Project beneficiaries

The principal beneficiaries in the implementation of SEP, of the agro-biodiversity project and of PRODII's program in general are the three farmer associations of Quechua origin in the municipalities of San Pedro de Buena Vista and Pocoata. These organizations had been strengthened by PRODII for several years before the project began in 2007. Their formation was catalyzed by PRODII inviting farmers to associate on a voluntary basis depending on the interest of the participants in the topics addressed by PRODII's rural development program. In Pocoata there are two associations working with PRODII: APROKAT²⁹, that mainly works with organic production and transformation of "oca"³⁰ and "kawi"³¹ (Jarro, 2009), and APROHIMA³² that works in the collection of wild infusion herbs. In San Pedro de Buena Vista there is one association, APROAQ³³ that works with native potatoes and other products.

The service providers

PRODII was directly responsible for the implementation of the SEP method in the three producer Associations. PRODII has more than 10 years of experience working for development with indigenous communities in North Potosí. Its approach is to consider the formation of individuals, the improvement of production and marketing on farms and the sustainability of natural resources as interdependent. This holistic perspective on development embraces work on organic farming and natural resource conservation.

PRODII received training from PROINPA Foundation a Bolivian research institution that works on different aspects of rural development in Bolivia, including promoting the conservation of agro-biodiversity.

The Public Sector

The municipal governments of San Pedro de Buena Vista y Pocoata were initially passive and even hostile actors in the rural development and agro-biodiversity conservation project and with respect to the application of SEP. Mayors made a political priority of executing of infrastructure

²⁹ Asociación de Productores de Kawi de Torko - Pcorasi

³⁰ Oca is an Andean tuber *Oxalis tuberosum*.

³¹ Dehydrated oca *Oxalis tuberosum*.

³² Asociación de Productores de Hierbas Mates

³³ Asociación de Productores Orgánicos Agropecuarios de Qhayanas.

projects to gain voter support rather than involvement in productive initiatives for the municipalities. During electoral periods and because of local distrust of international cooperation funds³⁴ received by PRODII, the municipalities threatened to expel PRODII from the area, to make themselves popular with voters.

International Cooperation

The Unitarian Service Committee of Canada (USC Canada) is one of the first internationally focused NGOs in Canada. It works with engaged Canadians and partners in Africa, Asia, and Latin America to support programs, training, and policies that strengthen biodiversity, food sovereignty, and the rights of those at the heart of resilient food systems – women, indigenous peoples, and small-scale farmers (USC Canada 2011). In Latin America, USC Canada works only in Cuba, Honduras and Bolivia. In the Bolivian case, there were two NGOs working in 2007 but in 2008 only PRODII continued to be funded.

USC Canada promotes the use of participatory methods such as CIALs and during two visits to PRODII enquired about the use of participatory methods in the field. The first visit was an external evaluation that interviewed an expert from PROINPA to try to understand how participatory methods were socialized with PRODII and the framework for their operation. Later on a second visit, this time formed by USC staff from Canada interviewed one of the experts from PROINPA to once again analyze in-depth the participatory processes carried out by PRODII and supported by Cambio Andino through the experts from PROINPA. According to PRODII's coordinator, one of the reasons why USC has continued funding PRODII's work in North Potosi, is the use of SEP among other participatory methods. (Jarro, 2010).

The German Technical Cooperation GTZ concentrates its work in Bolivia with different partners and on projects with individual Bolivian institutions in the areas of a) Administrative and judicial reform, civil society; b) Sustainable agriculture; c) Water supply and waste water disposal. In the area of North Potosi it supports ongoing development processes and has began a strong interaction with PRODII. GTZ works in the North Potosi region through a local PADEP³⁵ office in Llallagua. According to G. Jarro, GTZ has seen the effects of SEP and is currently funding new initiatives that include this participatory methodology as a tool to promote inclusion of the poor in planning and execution of municipal initiatives.

³⁴ In the current political context of Bolivia there is susceptibility regarding international funds that come through some donors because of the hidden agendas of donors.

³⁵ Program for the Support of Public Decentralized Management and Fight Against Poverty, financed by GTZ.

7.2.4. Rules in use

This section examines ways of conducting activities before SEP was implemented that we expect to be influenced by the implementation of SEP. Thus service provision, technology, farmer organization and monitoring and evaluation are all described to provide a baseline for understanding what changes after SEP was introduced.

Service provision

PRODII's institutional culture has a long-established custom of using participatory approaches to learning and for the provision of agricultural advisory services. Local demand for topics and problems to be addressed by extension is identified collectively between farmers and PRODII's professional staff, to design projects and programs. Members of the producer associations and professional staff also work together in the execution of jointly planned activities.

PRODII had engaged in co-production of products and services with farmers for a long period prior to the introduction of SEP. For example, several years prior to the implementation of SEP, the Association APROHIMA had identified the market potential of local medicinal herbs and so PRODII provided technical knowledge and capacity development in marketing and post-harvest processing. A production and marketing service is now provided for the medicinal herb producers in the Association. The role of APROHIMA is to identify their demand for innovations in the value chain and in production, organize farmer experimentation using the CIAL methodology and manage the volume for the supply of herbs.

PRODII's professional staff already had the function of channeling information and technological options to the CIALs and supporting their on-farm research process. The extension staff trust the CIALs to do adaptive testing while PRODDI staff do market research and provide technical assistance for quality control. Similarly, before the agro-biodiversity project began, PRODII had already carried out two previous projects on biodiversity conservation and promoted the role of volunteer farmer-stewards in biodiversity conservation that also involved sharing local knowledge and combining it with Western technical knowledge for biodiversity conservation.

PRODII's professional extension staff usually has a background in agriculture and provide services in native language. There is a positive attitude of mutual respect between farmers and technical assistance. In 2007 PRODII had already tested and validated some participatory methods to the context of North Potosí. Since its conformation in 1998 and through strategic alliances with GTZ, PROINPA, GNTF, CIAT Colombia and PROINPA, PRODII received capacity building and support to

test and apply participatory methods such as Farmer to Farmer, CEFE and CIALs amongst others. By 2008 they began structuring their own process of technology diffusion around what they called EFLEPI³⁶, which incorporates a sequence of capacity building modules that address topics of conservation, agricultural practices, market articulation, personal development and other complementary topics.

Technology and Natural Resource Management.

Local production is based on potatoes, broad beans, corn, and other introduced crops such as wheat, barley, and some fruit trees (peaches and apples). Despite being the center of origin of species such as *Chenopodium quinoa*, *Lupinus mutabilis*, *Oxalis tuberosum*, *Ullucus tuberosum*, *Tropaeolum tuberosum* and native potato varieties amongst others; their cultivation in the area is progressively reducing. On the other hand, native species are subject of irrational use which in turn causes erosion and loss of soil fertility.

Through the years ancient practices of conservation and sustainable management are being gradually lost and new generations seek external inputs to compensate progressive yield losses. From its very beginning PRODII began activities including some participatory tools to deliver technology transfer processes with farmers in North Potosí. Being a member of GNTP³⁷, PRODII frequently received feedback and support from people and institutions that practiced participation for research and development. In 2004 PRODII started testing the CIAL methodology and began supporting local participatory research for the co-production of technology. They also used some elements from the Farmer to Farmer method and several participatory tools to generate knowledge and formulate technical recommendations.

Farmer Organization and empowerment

Farmer organizations can be of two different types. Local community organizations or “Sindicato Agrario” that was established after the revolution of 1952 on former large private land, and “Ayllu” as a traditional indigenous organization that dates back to pre-colonial periods. In these organizations leaders usually are in office on a rotational yearly basis. All individuals have the chance of being leaders when their turn comes independently of their abilities and capabilities.

³⁶ Escuela de Liderazgo Económico Productivo con Enfoque Intercultural.

³⁷ Grupo Nacional de Trabajo para la Participación, translated from Spanish “National Group of Work for Participation”. This network of actors continuously shares experiences and tools to promote citizen participation, democratization of knowledge and empowerment. http://www.gntp.org/nosotros_en.htm

The levels of poverty along with the lack of education and historic relations of domination with the Inca Empire initially, later the Colonial Haciendas and “Encomiendas”³⁸ and the later Republican Haciendas has perpetuated vertical structures and forms of relation between farmers and institutions and even internally in their local organizations.

Women rarely participate in these processes and if they attend meetings their opinions are almost never expressed.

Monitoring and Evaluation

Within the Andean culture, traditional organizations have their own methods of monitoring progress of activities. What is usually done is that at the end of each term in office the communal representatives inform of the activities delivered during their time in office. This is usually done verbally and has no systematic or structured process of data collection. The Popular Participation Law³⁹ introduced the concept of social control where a vigilance committee was formalized to monitor progress of municipal activities. Usually this vigilance committee is designed by local authorities and represents the interests of the communities involved. Unfortunately these vigilance committee representatives also lack the tools to develop a systematic and structured process of monitoring and evaluation.

As an NGO financed by different international donors, PRODII’s planning, monitoring and evaluation processes are guided by the logic framework. This tool helps the institution report back to the donors the progress and achievements throughout the project execution. Progress reports are usually written by staff responsible of different geographic areas and centralized by the project leader or the coordinator.

7.3. Implementation of the SEP methodology

7.3.1. Motives for participating in the SEP application

Having been founded by people from the local indigenous communities, PRODII’s personnel is committed to local development, understands the local way of life and the needs of local groups. In a process of continuous search for new tools that will enhance the development outcomes of

³⁸ The Encomienda is a labor system that was employed by the Spanish crown during the colonial period. The crown granted a person with a specific number of natives from whom they were to take responsibility. This responsibility included protecting them from warring tribes, instructing them in Spanish and Catholicism and in return they collected a tribute in the form of labor, gold or other products.

³⁹ 1551 Law of Popular Participation approved by the Bolivian government on April 20th 1994 formalizes the existence of a vigilance committee and their roles. (Article 10: Vigilance Committee)

their interventions they identified SEP as a method that could contribute to both institutional and project objectives.

PRODII visualized a potential contribution of SEP in promoting the inclusion of more families in the agro-biodiversity project and the ownership of on-farm conservation by the participants. PRODII was also motivated by the possibility of SEP as a methodology that would accelerate innovation in the use and conservation of local agro-biodiversity by making it possible to evaluate and adjust proposed conservation technologies with farmers. Furthermore, PRODII expected SEP to strengthen individual capacities of participants, organizational capacities of the associations and improve the relationship between organizations, local municipal organizations and other institutions present in the area.

7.3.2. Timeline and roles

Table 7.1. Timeline Summary of SEP implementation by PRODII

No	Date	Activity	Participants
1	05/2007	Beginning of the Agro-biodiversity conservation, management and income generation Project	ND
2	08/2007	First workshop to teach the SEP methodology	5
3	04/2008	End of first year of project	ND
4	05/2008	Letter of agreement established with PROINPA on participatory methods	ND
5	08/2008	Workshop to reinforce the SEP methodology	7
6	2008 -2009	Implementation of SEP methodology	ND
7	2008-2009	Bimonthly feedback meetings and support for field implementation of SEP.	7
8	06/2008	Workshop to teach EPPR methodology	4
9	08/2008	Beginning of EPPR implementation in the field	ND
10	10/2008	SEP study tour in Chaco	4
11	10/2008 to 2009	EPPR reinforcement and feedback	7
12	6/2009	Second reinforcement workshop on SEP and EPPR in Llallagua	7
13	07/2009	Formation of SEP and EPPR facilitators	3
14	12/2009	Workshop on participatory methods delivered by PRODII's extension staff to other institutions working in North Potosi	ND
15	02/2010	Workshop on the analysis of SEP processes after the implementation in Llallagua	7

PRODII's acquaintance with SEP began some time before its implementation formally started in 2007. PRODII took part in a process of disseminating new participatory methods designed and/or adapted to the Bolivian Context by the FOCAM project financed by DFID. PRODII staff

participated in SEP training events in Cochabamba and identified SEP as a method that could contribute to the achievement of their institutional and project activities. This is why PRODII contacted PROINPA Foundation in 2006 to request support to implement SEP.

The process of SEP implementation followed the sequence presented below:

1. In May 2007 PRODII began the execution of the Agro-biodiversity conservation, management and income generation project financed by USC Canada.
2. In August 2007 first four day SEP workshop was held in Cochabamba, where PRODII's field staff and other members of development institutions attended. Participants received practical tools and were taught the SEP methodology as presented in the protocol.
3. By April 2007 the first year of the USC Canada project ended and PRODII's field staff had began introducing the basic steps of the SEP methodology with APROAQ in San Pedro de Buena Vista with the guidance of PROINPA. PRODII itself took responsibility for the application of SEP with the other two associations involved in the project (APROHIMA and APROKAT). The implementation of SEP was closely articulated with other project activities usually through capacity building events open to members of the producer associations. The capacity development in SEP was provided to the members of the association and the implementation was guided by a group of producers assigned to this task by the association members.
4. A letter of agreement was signed between PRODII and PROINPA to support the implementation of the SEP methodology in North Potosí.
5. A three day workshop on SEP was held where PRODII's field staff attended. In this workshop new staff participated to learn about the method and staff that had previously participated in workshops were also present to reinforce their knowledge.
6. From the beginning of 2008 to 2009 PRODII's staff began implementing the SEP methodology in the municipalities of Pocoata and San Pedro de Buena Vista. Technical staff in every area met with the local organizations to socialize the SEP methodology and promote the delegation of responsibilities of the implementation in organizational members. At this point the associations began implementing the methodology through the evaluation of every activity delivered by the technical field staff as part of the Agro-biodiversity project financed by USC Canada. The activities evaluated following the SEP methodology included field days, classroom sessions for teaching improved practices,

field tests of technology amongst others. After every event there was a SEP evaluation and the results were socialized with the technical field staff involved. The results of the evaluation were shared to negotiate agreements to improve performance in the next event. As a result a continuous feedback started from the farmer association members via the members responsible for the application on the day to day performance of the technical field staff. During this period of time SEP was progressively incorporated in the EFLEPI⁴⁰ training modules and thus being institutionalized it in PRODII's flagship farmer education program.

7. After two months of implementation, bimonthly visits by one of the PROINPA trainers began and continued during the rest of 2008 and the whole of 2009. In each visit the trainer met with PRODII's field staff, asked about problems and difficulties and tried to collaboratively find solutions to some bottlenecks in the process. There were also field visits where one community from the district of Qayanas in the Municipality of San Pedro de Buena Vista was visited. This area was selected for as an observation pilot site due to the possibility of arriving by car in the same day. The other areas where SEP was being implemented were too distant and included car journeys of over 6hrs from Llalagua and further travel by foot for 4 to 8 hrs. Where SEP was being started the trainers supported the field staff in the implementation of the SEP planning and delegation of responsibilities. Where SEP was already beginning implemented the trainers observed and co-facilitated the evaluation delivered by the organizational members in charge of the evaluation.
8. In June 2008 Corporación PBA from Colombia⁴¹ conducted a one week workshop to teach people how to apply the EPPR methodology. The workshop included the different partners of Cambio Andino in Bolivia and three of PRODII's field staff applying SEP participated in the event. No farmer association members participated.
9. In August 2008 the implementation of the first part of EPPR began in the field. Only the first part of the EPPR method was applied by PRODII's field staff. This involved introducing group dynamic exercises into the meetings that the field staff was holding with the farmer associations. These group dynamic exercises are designed to enhance self-esteem, communication skills and sensitivity to social difference like gender and

⁴⁰ Stands for "Escuela de formación de Liderazgo Económico Productivo con enfoque Intercultural" and can be translated as "School of formation in economic and productive leadership with intercultural focus". It is a participatory training process that includes the following modules: a) Personal development or empowerment, b) Business management, c) Agro-biodiversity.

⁴¹ A Cambio Andino Partner in Colombia.

ethnicity. For the remainder of EPPR there was supposed to be on line training but due to connectivity difficulties in Bolivia this never occurred.

10. In October 2008 there was a regional study tour visit organized by Cambio Andino. Partners from Colombia, Peru, Ecuador and other partners from Bolivia. Two representatives from PRODII participated in this event and were able to see and learn from the experience of SEP in Chaco.
11. Since October 2008, the bimonthly visits that were being done to reinforce SEP, PROINPA trainers included reinforcement for EPPR group dynamic exercises.
12. In June 2009, there was a second workshop with PRODII's field staff to review the SEP and EPPR methods and find alternative solutions to problems encountered.
13. In December 2009 PRODII's extension staff that participated in the workshop of SEP and EPPR facilitators formation, delivered a training workshop to staff working with development NGOs in North Potosi.
14. At the beginning of 2010 the PROINPA trainers held an analysis workshop with PRODII's field staff in Chaco. The analysis worked exhaustively through every step of the methodology in order to understand how it was applied and if there were any adjustments or modifications made to the initially proposed protocol. The conclusion was that there were no changes to the step by step process or to the tools. The changes proposed were the use of language and examples adapted to the local context.

Fidelity of the implementation

There were no significant changes or adjustments to the tools used in the SEP implementation according to the expert trainers from PROINPA who did the initial training and follow up visits. The capacity building process were initially targeted to a group of 5 of PRODII's staff members but later on reached up to 10 and was delivered by experts from PROINPA Foundation who had adapted the method to the Bolivian context. The training was delivered initially to PRODII's staff. PRODII proposed the implementation of the SEP methodology in the newest project they had that was basically the project financed by USC Canada on Agro-biodiversity conservation, management and income generation. PROINPA provided direct support for the implementation of the method with APROAQ in the municipality of San Pedro de Buena Vista. In this case PRODII took special care in ensuring stability of the personnel. PRODII itself assumed directly the implementation of the method in the municipality of Pocoata with APROHIMA and APROKAT. In these two cases some changes in personnel occurred but efforts were made by the institution to build the capacity of the new staff either through capacity strengthening by PROINPA experts or through support from colleagues internally.

7.4. Outcomes of the implementation

7.4.1. Prerequisites for co-production: Learning, changes in attitudes and social capital formation

Self-respect of farmers increased

The Producer Associations (established with help from PRODII) and eventually all the producers participating in PRODII's Academy for farmer promoters, EFLEPI took part in SEP training. Initially SEP meetings were held right after producers met for the execution of agro-biodiversity conservation activities. Members of the three producer Associations started evaluating the three professional extension agents assigned to them by PRODII and their performance, formulating suggestions to improve their work. Later on, as the implementation of the method evolved and trust between actors was developed, the Association members understood the need to evaluate themselves and their own organization's performance as well as that of the extension agent and began evaluating their involvement and participation in project activities.

Once the SEP covered themselves as actors they graduated into evaluating the technical innovations being recommended in leaflets on resource conservation and suggesting adjustments to the recommendations.

The attitude of farmers towards development processes taking place in their communities and the region have changed. Previously people rarely expressed content or discontent regarding any initiative. Nowadays farmers feel that their opinions are valid and needed to guide processes. Local knowledge on native potatoes, quinoa and other local species was included in a sequence of leaflets used to train farmer custodians of agro-biodiversity.

The use of SEP allowed the establishment of a formal context to evaluate learning and teaching processes as part of the EFLEPI learning modules. Extension field staff gradually improved the service due to suggestions and observations made by farmers and this has made them more confident regarding the job they do.

A way of sharing responsibilities (Felix Vale - Former Authority, 2011)

I used to be the Mayor of the municipality of San Pedro de Buena Vista and there is a lot of responsibility on your shoulders when you are an authority. After I left the office I started working with PRODII and that is when I came into contact with SEP. After being part of the application of SEP in the areas where I work as technical field staff, I realized that it is a good way of sharing responsibilities. When evaluations are delivered by farmers and decision making is shared, responsibilities are also shared between the actors involved in the process. If something goes wrong it becomes an opportunity to learn and people stop looking for someone to put the blame on as it was before.

Mutual respect among actors

PRODII technical field staff receives suggestions and observations from farmers as a way of improving their work. They feel it is the best way to know how they are doing. They are more confident now in the work they do. On the other hand, the trust of farmers towards technical field staff has increased. The donor that provided the funds for the Project execution perceived the use of SEP as a positive process that ensured the achievement of Project outcomes and therefore continued financing the project in 2009 – 2010 (Jarro, 2010).

Capacity for negotiation and organizational strengthening:

Farmers' capacity for negotiation of farmers has increased with the information generated through the SEP process. The negotiation over how to make changes in response to farmers' feedback delivered after every SEP evaluation has been employed by the farmers association to negotiate more funds for local initiatives in the municipalities. Leader Benito Villca Chira explains: "We deliver SE on average every three months and this covers not only PRODII's activities but also the municipal initiatives. We then use this mainly to negotiate counterpart funds. This is how we also apply SEP in the sub-municipality of Tomoyo and to the district of Uma Uma".

7.4.2. Embeddedness for co-production: Institutional innovations, changes in rules, roles, practices involving power-sharing

At the general management level PRODII is fully committed to the application of the SEP methodology. The feedback provided by farmers is highly valued by the Director as an input that allows them to achieve the desired project products and outcomes. This is why PRODII has implemented a PM&E system based on SEP called SIME that centralizes SEP information provided by farmers in geographical areas where PRODII works. The information aggregated by the system allows managerial decisions regarding personnel, the execution of projects and activities. This information is also used as an input for the elaboration of reports to donors.

FICHA DE EVALUACION

Taller: Distrito Comunidad: Fecha: 27-30 de Agosto 2008
Municipio: Facilitadores: B.C.

	CALIFICACION	TOTAL	¿POR QUE?	¿COMO MEJORARLOS?
	XXXXXXXXXX XXXXXXXXXX	20	- Práctica Participativa - Exposición a Juegos Matemáticos - Por Trabajo de Grupos - Se trabajó mejor en la práctica - Exposición equitativa - Tratando propio Usando APROAQ	- Mejorar la alimentación con más su refrigerio - Copias y folletos
	XXXXXXXXXX XXX	13	- Exposición técnica en suficiente - Exposición en palabras técnicas no entendido	- Lograr la participación equitativa con diversidad - Tiempo en suficiente en los trabajos
	XX	2	- No hay capacitación de los técnicos al contrario que aprenden descomponiendo de sus propias experiencias	- Debemos realizar con otros lugares el intercambio de experiencias, compartir los de los técnicos

ACUERDOS COMPROMISOS: Concluir el plan para la versión del APROAQ y de los pódicos Pódicos asistiendo puntualmente

Photograph 2:

Evaluation format delivered by farmers to PRODII's activities in North Potosi, Bolivia.

Farmers are aware of PRODII's commitment and are confident of the positive response they will get from the institution.

Before the implementation of SEP project reports by PRODII were prepared by technical staff with their perception of achievement alone. Currently this has changed for PRODII now receives feedback from the evaluations delivered by farmers and takes action to adjust processes according to the suggestions formulate.

Farmers have developed leadership capabilities and have strengthened their management skills through the use of SEP that have helped them participate more in decision making spheres in the public sector and within second and third level traditional organizations. Given the current political context where spaces of participation are opening up for representatives of social movements, leaders from the Ayllu Qayanas are now interacting with Assembly Representatives⁴² and Departmental Counselors⁴³ to provide feedback on the needs in the area.

By 2009 people extrapolated the process to other spheres which included other local organizations and public institutions present in the area. In North Potosi, Municipal Councils for Development (CDMs) have been created and established with members of the public and private sectors, including farmer organizations. The CDMs act as a board that controls processes led by

⁴² The aggregation of municipalities has assigned representatives to the national congress assembly.

⁴³ Every municipality has an assigned representative to the departmental government or "Gobernación".

municipalities. The CDMs are applying SEP in the district of Uma Uma. For now CDMs are using SEP to control responsibilities of the municipality on education, health and other activities.

7.4.3. Coproduction

Blended technology

SEP has helped PRODII to improve the utility of Ecological Fairs held every month in Llalagua since March 2010. These Eco-Fairs emerged as an initiative led by farmer associations and promote market articulation of organic and agro-biodiversity production from communities in the area. Farmers take their products to Llalagua and so far have been able to sell much of their production in these fairs. As a result of the SEP evaluations delivered to PRODII, farmers suggested the Mayor of San Pedro de Buena Vista that their Municipality should be declared Ecological Municipality due to the nature of production in all of its territory. The mayor accepted the suggestions and is currently leading a process with the Prefecture to have the Municipality be declared “Ecological”. Farmers and authorities hope that this measure will help the marketing strategy of the municipality.



Photograph 3.

Farmers observing the guides on biodiversity conservation practices elaborated between PRODII and themselves. They see pictures of themselves along with recommendations in the guide. North Potosí, Bolivia.

Processes of technology evaluation and transfer have also been affected by the SEP process. Local validation has increased the adoption of some technologies even beyond the domain of the recommendation formulated by the institution, while other technologies have been substituted.

Complementary functions performed to provide a service**7.4.4 Benefits of co-production*****Improved quality of service***

PRODII's reputation as a service provider has increased with SEP. The Municipality used to view PRODII with suspicion as an agent of international cooperation which was distrusted by EVO Morales's supporters and associated with all the shortcomings of agricultural advisory services under the previous national government. However, SEP provided positive feedback that became widely known and so when the Municipality decided on providing support services to farmers for agricultural production, they recruited farmer promoters that were trained by PRODII (Jarro, 2011). This new service allowed people who didn't previously receive technical assistance to have support during critical planting and harvesting periods when farmers need more guidance.

Now everyone wants Phalaris Grass!**(Germán Jarro – 2010)**

To support soil conservation PRODII introduced two new technologies to be tested with farmers. One was the construction of terraces of slow formation with stones and the other was the use of phalaris grass (*Phalaris arundinacea*) in borders to prevent water erosion. After trying both technologies farmers realized that the stone terraces housed rodents and those became a plague of harvest, while phalaris grass grew strong providing forage for their animals and doing well the job of preventing water erosion. For this purpose farmers expanded the use of this grass to other communities where the introduction had not been intended initially. Today it is a very popular grass in steep hillsides used on the border of plots to prevent water erosion.

Improved coverage and inclusion of the service

Before the implementation of SEP the Municipal Vigilance Committee lacked tools to operate an effective process of inclusion of the communities in the planning, monitoring and evaluation of municipal initiatives. Once SEP was implemented, the communities' representatives in the Vigilance Committee perceived the usefulness of the method to articulate themselves with the municipal initiatives. The SEP method was introduced into the routine procedure of the Vigilance Committee as a tool for its operation. Many farmers attribute the current success of the vigilance committee to the introduction of SEP as a tool to organize a systematic process that helps local people take account of the use of funds from the Popular Participation accounts in the municipality. Nowadays, communities effectively set priorities for municipal investments, plan

interventions and monitor the execution of activities. Some of the activities being invigilated now are the construction of health and communications infrastructure and other health initiatives. The Sub Municipality of Tomoyo, a sub division of the Municipality of Pocoata, learnt about SEP through the experience of farmers applying the method to the PRODII project in the area. Their perception about the methodology took them to apply SEP in the initiatives they delivered as Sub Municipality. SEP was applied to health, education and production initiatives as well as to infrastructure projects in execution. The implementation of SEP in these public initiatives helped the service improve.

Better infrastructure and health services for Tomoyo !!

(Vicente Velasco, 2010)

An intern school was being built in Tomoyo but there were continuous delays by the builder and we were worried that it would not be made on time for the beginning of the school year. By implementing SEP to this initiative farmers learnt about the construction process and the costs. They presented the results of the evaluations to the Sub-Municipality of Tomoyo and the authorities took action demanding the builder to meet the compromised horizon of time. The builder responded positively and the intern school was finished on time before the beginning of the school year.

Health services had little coverage before and people were not satisfied. The Sub-Municipality supported the delivery of SEP to health service activities. As a result people observed the difficulties in accessing the health professional and noted that even though he had a schedule for visiting different communities; people didn't know about it and therefore usually missed those visits. To solve these difficulties nowadays the health professional plans visits to communities in advance and communicates the plan to the communities. This way people organize their activities to receive health services on the required dates. As a result of this process there is better health coverage and more people participate in the vaccination campaigns.

Adjustments made to planning of health service provision, made possible through the use of SEP, have allowed more people to access the service and more children to receive vaccination. Technical assistance that before was limited to those participating with PRODII has now expanded to include more people through the Municipality that hired local promoters to provide guidance for agricultural production. The inclusion of this technical assistance service provided by the municipality through promoters trained by PRODII is a novel service since there was no record of previous technical assistance provided by the municipality.

7.5. Prospects for the future

GTZ has approved a project which has as one of its objectives to include SEP in projects in the sub-municipalities of Qayanas, Tomoyo and Uma Uma. PRODII is elaborating a proposal to apply SEP broadly to different organizations and institutions present in the geographic areas of intervention. The proposal aims at enhancing local democracy and promoting citizen participation.

7.6. Lessons and suggestions for improvement

This case demonstrates that the SEP method can be applied in a broad range of local government initiatives that go from production to education, health and infrastructure. The CDMs act as an operational body that exercises direct influence over municipal governments in order to ensure the achievement of objectives and activities compromised for the population. In a country where social movements have developed enough strength to complain and to change governments, the possibility of having a tool to exercise educated demands and control while at the same time making people co-responsible for processes taking place in their area of work, is of great practical importance.

7.7. References

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8. CONCLUSIONS FROM COMPARISON OF THE CASES

This Chapter takes a comparative approach to the case studies in order to address two questions that aim to improve our understanding of how and under what circumstances participatory methods may contribute to improving the relevance and inclusiveness of agricultural advisory services for poor farmers in developing countries:

1. Did the SEP or CIAL participatory method assist co-production of a better quality agricultural advisory service by helping potential co-producers understand and articulate their potentially complementary knowledge inputs to provide better technical recommendations?
2. Did application of the SEP or CIAL participatory method contribute to the development of complementary roles, practices and responsibilities such that farmers gained control over and responsibility for one or more extension functions such as communication of technical recommendations to other farmers, community field days, identification of market linkages or adaptive technology testing.

These two questions will be examined in the following framework. First, the fidelity of implementation of the SEP and CIAL methods is assessed across the cases because our conclusions about the methods depend on whether the intervention observed in each case deviated from its principles in ways that affected the outcomes. Next results in relation to empowerment and social capital (pre-requisites for co-production) are compared. Here we aim to assess across the cases whether implementation of the method produced what was expected in terms of empowerment and social capital, referred to as the pre-conditions for co-production. This provides the basis for examining what institutional changes in roles, practices and power-sharing can be attributed to the implementation of the methods in terms of whether the method helped the co-producers to “get onto the same page” in terms of what goods or service to co-produce. Finally we examine across the cases the results in terms of the co-production of innovation in the advisory service related to (a) more relevant technology and technical recommendations for poor farmers and (b) increased coverage and inclusiveness of service provision. In conclusion, the comparison across the cases will discuss the validity of the theory that these two participatory methods represent institutional innovations that make a crucial contribution to facilitating co-production of improved agricultural advisory services for poor farmers.

8.1. Fidelity of implementation of the methodology

Both the CIAL and SEP methods proved to be robust and the immediate results were consistent with adherence to the principles of each method. Adaptations of the CIAL method were made when UMATA extension agents scaled back their presence in the CIALs and delegated very quickly after the first semester of planting bean trials. This did not hold back maturation of the CIALs because farmers saw in the first semester how resistant the new varieties were and this motivated them to take over the CIAL process. In SEP cases adaptations were related to translation to Quechua and use of pictorial presentations, which are foreseen in the method for work with semi-literate groups. In addition, in two cases volunteer farmer-promoters conducted SEP instead of forming a SEP committee. SEP in these cases produced corrective feedback from farmers to service providers with different adaptations and shows that the formation of a SEP committee is not a requisite for this feedback to be produced. So long as beneficiaries' opinions are well represented by volunteer, farmer-promoters these can conduct the SEP process. There was no evidence that SEP failed to produce corrective feedback that farmers disagreed with when the approach was adapted in this way.

8.2. Results in relation to empowerment and social capital (pre-requisites for co-production)

In all the cases, the participatory method has catalyzed changes in self-esteem, capacity for negotiation and mutual respect in the face-to-face relationships between professional extension staff and farmers (see Table 8.1). Thus the preconditions for co-production were largely achieved in all the cases, catalyzing role changes involving power-sharing, and the development of new rights and responsibilities in the performance of co-produced agricultural advisory services. Service providers and farmers developed mutual respect. In the SEP cases, poor farmers developed the self esteem to be assertive and criticize people of higher social status. Assertiveness and self-esteem developed collectively in the CIALs where farmers did not automatically prioritize the varieties the bean breeder considered the best performers. In SEP, performance evaluation of extension staff was done in groups of farmers immediately after an activity being evaluated and then conveyed by the group to the extension staff. In the CIAL and SEP cases, capacity to organize collective action was enhanced when farmers took over activities as a group that were delegated by the UMATA and the groups grew in size. In all three SEP cases, farmers learnt how to negotiate with professionals and get them to respond to corrective feedback and to change their extension approach.

8.3. Institutional change in relation to embeddedness

In all cases, there were some changes in roles and practices that reflected power-sharing in the relationship between farmers and extension (see Table 8.1). In the CIAL case, farmers' roles changed to leading the process of technical innovation with new varieties while extensionists stepped back and disseminated the products of innovation. Despite this success, farmers in the poor communities where CIALs were developed could not pack enough political punch with local government to expand the annual budget allocated to resourcing the CIALs. Similarly, in one of the three SEP cases role changes were limited in scope by the prevailing technology transfer approach to extension and in another, conflict over unmet expectations caused farmers to distrust and withdraw from their relationship with extension and with SEP.

Even so, SEP was adopted into the Bolivian municipal Vigilance committees even when the NGO hosting the implementation did not institutionalize SEP itself. This is logical given that under Bolivia's current reformist decentralization of budget control, rural people are more interested in improving their invigilation of resource use in local government than they are concerned with reforming local NGOs. In two of the three SEP cases, farmer associations and indigenous peoples' organizations that gained experience in SEP were effective in institutionalizing SEP into their local Municipal Vigilance Committees. In both instances this was not a planned part of the SEP implementation but it greatly strengthened its scaling up to higher levels of decision-making and its extension from NGOs into the public sector. This process was an important feature of embedding new norms, rules of conduct and roles in public sector agencies that enabled power-sharing between civil society organizations and the state.

All the cases demonstrate the importance of leadership at the top of an organization, regardless of its size, for institutionalization of a participatory method. In the case of the CIALs, support from the Mayors and local government councilors was essential for the CIALs to gain a foothold in the Municipal budget and to receive seed and fertilizer in kind needed for their on-farm experimentation. This support was being cultivated when the Secretary of Agriculture stopped funding the process and due to demand from several Mayors, there is now an expectation that the Ministry of Agriculture will pilot the method at an expanded scale. In the cases involving SEP an important aspect of implementation was that PROINPA -- the provider of training and in the case of Chaco, the implementer of SEP, committed to institutionalizing SEP in its own operations. This is in large part due to PROINPA's Director of Research whose Ph.D. dissertation was on SEP and who therefore has an intimate knowledge and conviction about the method. In PRODII SEP has been

incorporated into routine procedures so that the professional field staff, farmer promoters and graduates of the *Escuela* are all expected to have training in and to implement SEP.

However, institutionalization within the provider organization is only half the battle. As the SEP Chaco case showed very clearly, when high levels of decision-making external to the provider and the farmer organizations and with control over important resources are impervious to corrective feedback from beneficiaries, the whole SEP process can become dysfunctional and breakdown out of frustration.

8.4. Results in relation to innovation in the co-production of agricultural advisory services

This section discusses the results of implementing the participatory methods in relation to innovation in the co-production of agricultural advisory services. This includes the agricultural technology, technical recommendations, linkages to markets, training and farm visits that form part of these services. The results are mixed with respect to innovation that can be directly attributed to the participatory methods (see Table 8.1). CIALs were able to successfully test, select and disseminate new varietal technologies in ways that depended on complementary knowledge inputs from research, extension and farmers. Farmers' relationships to the market intensified as a result of the CIAL technology once they had surplus beans and maize to sell. In the case of PRODII, the CIAL process was already in place when SEP was introduced and the two methods were associated with knowledge blending after participatory evaluation of novel technology and when indigenous knowledge informed the production of training materials for PRODII's Academy for farmers.

However, use of SEP did not in and of itself lead to technical, commercial or institutional innovation. In the case of Chaco there were serious political obstacles that stopped farmers from accessing the machinery they had been promised and that corrective feedback from SEP could not overcome. In each case, SEP proved useful for performance monitoring of extension staff but could not leverage changes beyond performance of the service provider's extension staff unless there was already committed leadership willing to make further changes. In the case of IPTK, SEP was applied primarily to improve performance of extension staff but did not affect what kinds of innovations were being supplied to farmers. IPTK's transfer of technology approach persisted and limited co-development of technological innovations by IPTK even though SEP was effectively implemented and scaled out to engage the Municipality in institutionalization of SEP.

8.5. Results in relation to the relevance, coverage or inclusiveness of service provision

The cases all showed some improvements in the relevance of agricultural advisory service provision as a result of using participatory methods.

- The quality of communication between farmers and professional extension staff improved
- Professional extension staff made adjustments in their approach in response to feedback, for example they shifted from individual to group extension
- Extension staff planned more realistically and carried out a higher proportion of their planned activities because they knew they would be held to account by farmers and by their supervisors
- Farmers felt more confident about making demands on service providers
- Both SEP and CIAL methods produced results that convinced local government to invest in expansion of the implementation in ways that extended services to more poor farmers.

These changes were achieved quickly and except for the changes in local government, represent short-term products of improving empowerment and social capital by using the methods. Co-production of goods or services between farmers and the host NGO service provider was not an automatic result of using either participatory method. Where co-production occurred between these two types of actor, as in the CIAL and PRODII cases, an important factor was that a convinced leadership encouraged the fusion of complementary kinds of knowledge to produce blended technological innovation.

8.6. Validity of the theory of change

The cases illustrate that SEP and CIAL methods can help to catalyze changes in norms and roles that involve power-sharing if changes take place in empowerment and social capital. In terms of these short-term products, SEP and CIAL methods generally improved the performance of professional extension services as predicted by the theory of change. However, these cases do not provide a clear basis for concluding that the use of these participatory methods will guarantee that farmers and service providers engage in complementary functions leading to co-production of technological innovations. The potential for co-production of advisory services was built into the extension method used by the service providers of enlisting and training farmers as volunteer promoters of recommendations or technologies in their communities. In this situation, farmers provide complementary communication skills and time for farm visits that augment the reach of the extension service into remote communities. SEP helped to improve the quality of this

extension relationship. However, in IPTK, Bolivia use of SEP did not mean that farmers developed their potential as co-producers in knowledge generation and technical recommendations. In contrast, PRODII in Bolivia and the CIALs in Colombia did produce blended technologies. SEP improved PRODII's capacity to articulate with farmer knowledge and influence the Municipality's perception and use of farmer promoters and Ecological Fairs.

It is clear therefore, that a method like SEP cannot on its own transform power structures that prevent the role changes and power-sharing needed for co production. SEP improved service delivery in two out of three cases but when the institutional culture was unfamiliar with participatory technology development and dominated by a technology transfer approach, as was the case in IPTK, use of SEP did not catalyze co-production of blended technologies. Similarly, SEP in the PROMyN project in Chaco could not alter the fundamental inequalities of power that caused farmers' profound dissatisfaction and withdrawal from its activities. The CIALs were able to achieve co production of blended technology and to co manage adaptive testing successfully but were unable to mobilize the level of political support from local government needed to institutionalize allocation of annual budget resources for their continued support.

External institutional structures and power relationships proved determining factors in these cases. Users found implementation easy and practice was consistent with the methods. Everyone who used SEP found the corrective feedback manageable and useful for improving performance in face-to-face relationships among farmers and professional extension staff. Whether improvement in these relationships was also associated with other changes in goods and services depended on contextual institutional structures that SEP was not designed to transform. In conclusion, these participatory methods can be characterized as contributing to co-production of improved agricultural advisory service for the poor when an enabling environment exists for innovation more relevant to and more inclusive of poor farmers. Methods on their own will not produce more relevant technologies or more access to services for the poor.

8.7. Lessons for future implementation

It is important not to expect too much of participatory methods. SEP is a flexible method, useful for performance monitoring and corrective feedback in almost any sector where services are performed. SEP provides an important tool for making the notion of accountability operational and has been taken up to different degrees for this purpose in all three cases studied. Beneficiary monitoring and evaluation can improve performance but not restructure inequities of power or a culture of top-down technology transfer, as these cases using the SEP method illustrate. Likewise,

it is wise to temper expectations that participatory technology development as practiced in the CIALs (and other similar methods) will overcome the deficiencies of innovation processes that neglect poor farmers. CIALs helped to make research and extension more effective and more equitable but were a complement not a substitute for these services, as the theory of co-production stipulates

While use of SEP or CIAL cannot overcome the structural inequalities that lead to neglect of poor farmers needs, the methods undoubtedly trigger a process in which farmers become more assertive about what they want and less accepting of bad quality agricultural advisory services, poorly oriented training, inappropriate technologies, untested recommendations and unmet extension promises.

Table 8.1. Changes attributed to participatory methods SEP or CIAL related to co-production.

	Case 1 CIALs Colombia	Case 2 IPTK Bolivia	Case 3 PRODII Bolivia	Case 4 PROMyN Bolivia
<u>1. Pre-requisites for co-production</u> 1.1, Self esteem among farmers, 1.2 Capacity for collective action and negotiation of farmers increased 1.3 Mutual trust and respect among actors	Farmers were confident they could run the CIAL process as a group without waiting to be told what to do Farmers trusted extension enough to use farm credit for the first time UMATA agents trusted CIALs to pick and recommend varieties from their trials	Association members evaluated the IPTK staff using SEP and gave face-to-face feedback about how to improve their performance.	Association members evaluated the PRODII staff using SEP and gave face-to-face feedback on needed improvements in their performance in plenary meetings. Farmer associations successfully negotiated changes in extension methodology with PRODII.	Using SEP results, local leaders felt more confident about complaining to the Prefecture Association members evaluated the PROINPA staff who agreed on ways to improve their performance.
<u>2. Embeddedness</u> Changes in norms, roles and practices involving power-sharing	UMATA agents cut back individual farm visits and delegated adaptive testing to CIALs Mayors channeled resources for agriculture through the CIALs	SEP used routinely as a part of the formal PM&E system. All professional extension agents required to listen to feedback from the promoters and to bring this feedback forward the staff member in charge of the PM&E office. Farmers introduced SEP into the Municipal Vigilance Committee	PRODII installed SEP as an institutional information system "SIME" The Mayor of Buena Vista where PRODII works endorsed and adopted SEP for use in the Vigilance Committee.	Two new farmer associations were formed that included SEP in their statutes but the more established associations dropped SEP out of frustration with the Prefecture

	Case 1 CIALs Colombia	Case 2 IPTK Bolivia	Case 3 PRODII Bolivia	Case 4 PROMyN Bolivia
<u>3. Co-production</u> 3.1 Innovations blend local and exotic knowledge and technology, and are adopted 3.2 Complementary, unique functions performed by clients/users and providers to provide a service	Varieties were tested, selected, recommended, multiplied and distributed based on complementary inputs from research, extension and farmers CIALs assumed responsibility for technology validation and seed multiplication, UMATAs concentrated on disseminating the seed broadly	No technological or commercial innovations were associated with SEP Monitoring and evaluation defined as a joint responsibility professional staff the volunteer farmer promoters	Farmers' knowledge and evaluations of new technology were taken into account in PRODII's recommendations and leaflets for training farmer promoters Ecological Fairs were promoted based on SEP evaluations. The municipality started operating an expanded agricultural advisory service for which PRODII provided the training and field support of local promoters and the municipality provided the funding	No technological or commercial innovations were co-produced in association with the use of SEP
4. Benefits of co-production 4.1 Quality/relevance to poor of service improved 4.2 Increased coverage and inclusion of the poor	Seed of CIAL varieties disseminated by extension to poor farmers in other districts. Farmers in poor <i>veredas</i> received new technology and organized in groups for the first time Food availability, incomes and on-farm employment improved in the poor households growing CIAL beans and maize	SEP was not associated with changes in IPTK's supply of technologies or technical recommendations SEP used in the Municipal Vigilance Committee improved coverage, inclusion of marginal groups and quality of education and health services	PRODII's technical recommendations were more relevant and adopted more quickly or by more farmers The municipality's new agricultural advisory service includes farmers previously without any extension	Innovations were not coproduced



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