

The Participatory Market Approach: Experiences and results in four Andean cases

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Abstract

This paper presents results of a study of four applications of the “Participatory Market Chain Approach” in Bolivia, Colombia, and Peru. In these cases, the PMCA was used to stimulate pro-poor innovation in value chains for coffee, dairy products, native potatoes, and yams. Local and national groups affiliated with the Andean Change Alliance used the PMCA to explore and promote the use of participatory methods in agricultural innovation processes, in order to improve the livelihoods of poor farmers. In this paper, we explain the conceptual frameworks and case study methods used to gather and analyze information on the cases, and then summarize case-study findings for each of the four applications of the PMCA. The case-study findings are analyzed in relation to six themes: (1) fidelity of implementation of the PMCA in the four cases; (2) results of the PMCA; (3) factors that have influenced implementation and results; (4) institutionalizing use of the PMCA; (5) validity of the PMCA theory of change; (6) contributions of participation to the results observed. This analysis is followed by general conclusions and suggestions for improving the PMCA and its future application.

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Abbreviations

ALTAGRO	Agricultura Andina en el Altiplano, a CIP-managed project
AMPVARPE-TU	Asociación de Mujeres Productoras y Vendedoras de Alimentos Pre-Elaborados – Tarapoto Unico, Perú
AOPEB	Asociación de Organizaciones de Productores Ecológicos de Bolivia
APPLA	Asociación Provincial de Pequeños Productores de Leche Avaroa, Bolivia
APROLAC	Asociación de Productores Lácteos, Bolivia
CAD	Centro de Apoyo al Desarrollo, Llallagua, Bolivia
CADAFOP	Cámara de Desarrollo Agropecuario y Forestal de Potosí, Bolivia
CIAT	Centro Internacional de Agricultura Tropical
CIAT-SC	Centro de Investigación Agrícola Tropical, Santa Cruz, Bolivia
CIP	Centro Internacional de la Papa
COLNODO	Asociación Colombiana de Organizaciones no Gubernamentales para la Comunicación Vía Correo Electrónico
CORPOICA	Corporación Colombiana de Investigación Agropecuaria
DANIDA	Danish International Development Agency
DELICORM	Deliciosa Comida Regional Milenaria
DFID	Department for International Development of the United Kingdom Government
FAO	Food and Agriculture Organization of the United Nations
FEDEPLO	Federación Departamental de Productores de Leche Oruro, Bolivia
IAD	Institutional analysis and development
ICA	Instituto Colombiano Agropecuario
IDRC	International Development Research Centre, Canada
IIAP	Instituto de Investigaciones de la Amazonía Peruana
IITA	International Institute for Tropical Agriculture
INCOPA	Proyecto para la Promoción de la Producción Competitiva de la Papa Peruana
INIA	Instituto de Innovación Agraria, Perú
INPROLAC	Industrializadora de Productos Lácteos – Cercado, Bolivia
PBA Foundation	Corporación para el Desarrollo Participativo y Sostenible de los Pequeños Agricultores, Colombia
PMCA	Participatory Market Chain Approach
PREVAL	Programa para el Fortalecimiento de los Sistemas Gubernamentales de Seguimiento y Evaluación de Proyectos y Programas de Desarrollo Rural en América Latina y el Caribe
PROINPA	Fundación para la Promoción e Investigación de Productos Andinos
PROPANA Network	Red de Productores de Papa Nativa, Bolivia
RAAKS	Rapid Appraisal of Agricultural Knowledge Systems
SEA	Servicios Empresariales Agropecuarios, Bolivia
SEDERA	Fundación de Servicios para el Desarrollo Rural Agropecuario, Bolivia

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Summary and Conclusions

INTRODUCTION

The Andean Change Alliance (henceforth “Alliance”) was a collaborative regional program operating in Bolivia, Colombia, Ecuador, and Peru that pursued three objectives:

1. Improve the capacity of national agricultural research systems to identify and respond effectively to the demands of poor farmers for agricultural innovation
2. Promote collective learning and knowledge sharing with participatory methods in the Andean region
3. Influence policy formulation and implementation related to participatory methods and approaches

One of the participatory methods that the organizations affiliated with the Alliance experimented with was the “Participatory Market Chain Approach.” The PMCA is a participatory-action-research approach that is designed to identify business opportunities in market chains that are important to small farmers; and to develop economically viable ways to exploit these opportunities and benefit small farmers as well as other market chain actors. A central feature of the PMCA is that it brings diverse stakeholders together to identify and exploit new business opportunities. The PMCA involves a facilitated process that seeks to improve communication, build trust, and foster joint activities that stimulate commercial, technological, and institutional innovation around new business opportunities.

The Alliance tested the PMCA in several value chains with local groups. This study focuses on the following four cases:

- Case 1: Developing a local market for high-quality coffee (San Martin, Peru)
- Case 2: Developing and marketing a new dairy product (Oruro, Bolivia)
- Case 3: Conserving and marketing native potatoes (Northern Potosi, Bolivia)
- Case 4: Developing new markets for yams (North Coast of Colombia)

STUDY OBJECTIVES AND METHODS

This study has seven objectives:

1. Evaluate the fidelity of the PMCA implementation process
2. Document results of the PMCA
3. Identify key factors that influence the implementation and results of the PMCA
4. Determine the extent to which use of the PMCA has become institutionalized
5. Evaluate the validity of the PMCA theory of change
6. Identify contributions of participation to pro-poor innovation
7. Draw lessons for improving the PMCA and its future applications

Two analytical frameworks were selected to guide the research. One is the “Program Theory Framework” developed by Chen (1990; 2005), which illustrates how an intervention like the PMCA is designed to operate – the “action model” – and how it is assumed to bring about the desired changes – the “change model”. In 2006, the Alliance used the program theory framework to formulate hypothesized “impact pathways” for the PMCA in workshops with partners using the Participatory Impacts Pathway Approach (Douthwaite et al., 2007; Alvarez et al., 2008). In the present study, we now look back to test the validity of this construct in four cases.

The second analytical framework is the “Institutional Analysis and Development Framework” (Ostrom, 2005; 2010), which posits that repetitive human behavior – “institutional behavior” – is influenced by three main sets of independent variables:

- Biophysical / technical factors
- Characteristics of the population or community
- The “rules in use”

These frameworks have guided our information collection and analysis. The study employs a comparative case study methodology, and draws on the abundant documentation generated by the Alliance, including monitoring and evaluation reports. Information was also gathered during visits to four study sites.

CASE STUDIES

Brief reports are presented on four case studies. These include information on the following aspects of the cases:

1. Context in which the PMCA exercise was implemented (the macro context, the market chain, market chain actors and service providers, and norms and customs)

2. Implementation of the PMCA exercise (main participants, timeline and roles)
3. Outcomes of the exercise (changes in knowledge, attitudes, and skills; commercial, technological, and institutional innovations; inclusion, empowerment, and wellbeing; institutionalization of the PMCA; prospects for the future)
4. Conclusions and suggestions for improvement

While the four PMCA exercises were all carried out within countries of the Andean region, there were significant differences in the macro setting of each case. One important difference concerns the national economic policy environment. Recent governments in Colombia and Peru have pursued neo-liberal economic policies that promote market-led development through promotion of competitive markets, international trade, and investment. In contrast, the Bolivian government has emphasized regional and indigenous development, food security, and conservation of natural and cultural resources. These differences in government policy have influenced the attitudes and behavior of public servants and NGOs and their views on value-chain approaches such as the PMCA. The Colombian and Peruvian economic policy regimes have been more favorable than the Bolivian regime to use of the PMCA.

Case 1. Developing a local market for high-quality coffee (San Martin, Peru)

Peru's San Martin province produces some of the best coffee in the world. Yet the region has no "coffee culture." People consume little coffee, and most of what they do consume is imported instant coffee. The international NGO Practical Action has worked in Peru's San Martin department for more than a decade to promote sustainable and equitable development of the coffee industry. Until recently, virtually all efforts focused on improving production and post-harvest practices for export coffee. Beginning in 2006, Practical Action and local partners applied the PMCA to promote development of the local market for locally produced coffee. The PMCA was applied over a period of 16 months, from June 2007 – October 2008. A women's food processing and marketing group was a central actor in the case. Public events held at the end of each phase of the PMCA attracted 70 or more participants representing different links in the market chain as well as governmental and non-government research and development organizations. Results of the PMCA exercise included enhanced knowledge and skills for producing and processing high-quality coffee, improved relations among market chain actors, and a new brand of coffee sold on the local market. Since completion of the PMCA exercise in 2008, several new brands of coffee have appeared in local and regional markets, and an association of the artisanal coffee processors who produce these new brands has been established. A recent event to promote the new local brands of coffee attracted the Regional President, other "VIPs," local radio, TV and newspapers, and about 500 members of the public.

Case 2. Developing and marketing a new dairy product (Oruro, Bolivia)

The Oruro department in Bolivia's altiplano is famous for its silver and tin mining and its legendary carnival. Agriculture is dominated by extensive livestock production on semi-arid high, flat grasslands. Agriculture and livestock herding are challenged by the region's cold, dry environment, and rural population density is low. Over the past 30 years, development of micro irrigation has stimulated small-scale cropping and dairy herding near the capital city, Oruro. The Danish International Development Agency (DANIDA) and other development organizations – both foreign and national – have encouraged and supported farmer self-help groups that operate community-based dairy processing plants. Dairy specialists who worked in aid programs have established a foundation (SEDERA), linked to the departmental federation of dairy producers. This group now offers technical services and support to small herders and dairy processors. From October 2007 – April 2009, SEDERA and local partners applied the PMCA with the goal of diversifying the products produced and marketed by community-based dairy plants. One focus of the exercise was to develop a new mozzarella cheese product, to supply pizzerias in Oruro city. The exercise faced several obstacles. It was difficult to bring stakeholders together in face-to-face meetings, in part because small herders are scattered over the rural landscape, often in remote locations. Midway through the PMCA exercise, the farmers' organization that was originally involved withdrew and had to be replaced by another organization. Perhaps the most fundamental obstacle was the marginal, low-yielding nature of local dairying and the resulting high cost of locally produced milk, which makes locally produced mozzarella cheese costly relative to a competing product from Santa Cruz. As a result of the PMCA exercise, SEDERA and a local farmers group (INPROLAC) were successful in developing a new dairy product that met local quality requirements and is now being marketed on a small scale in high-end markets in Oruro under the *"Vaquita Andina"* brand. Due to the high cost of production, the sales and subsequent benefits to small producers remain small. One of the main benefits of the PMCA exercise has been the experience gained by SEDERA with market-chain innovation processes and the new market-orientation with which it now works. Another benefit has been that members of SEDERA and INPROLAC now have a much greater awareness of the importance of establishing and maintaining high quality standards for their dairy products. They are applying this principle in their entire menu of dairy products now.

Case 3. Conserving and marketing native potatoes (Northern Potosi, Bolivia)

The main economic activity in Northern Potosi is mining, and most of the region's population is concentrated in mining centers. Agriculture and livestock herding are limited by the region's harsh climate and mountainous topography with small areas suitable for production on valley

bottoms and sides. Rural population density is low and the rural population is among the poorest in the country (and in Latin America). One of the region's underexploited resources is the genetic diversity of its native potatoes, which exceeds that found in any other region in Bolivia. The PROINPA Foundation and the Center for Agricultural Development (CAD) have worked for several years to conserve biodiversity in the region's potatoes and other Andean crops and to reduce poverty. From May 2007 – October 2008, CAD and local partners implemented the PMCA to promote the development of markets for the native potatoes produced by small farmers in the region. This effort was backstopped by PROINPA and Papa Andina. A new potato product branded "Miskipapa" was developed, which consists of selected and washed native potatoes sold in net bags. Miskipapa has been marketed in supermarkets in La Paz and Cochabamba, in the store of a mining union, in two tourist hotels, and in farmers' markets. Results have been mixed, due to limitations in both the supply of native potatoes and the demand for them. During and after the PMCA exercise, CAD has played crucial roles in establishing farmers' organizations, linking them with potential buyers, and assisting with specific market functions. Governmental bodies have stated their commitment to supporting the efforts of farmers' organizations to market their produce, and have offered facilities for processing native potatoes and other Andean crops. However, little governmental support has materialized. After the end of the PMCA exercise, CAD has continued to support the marketing initiative. Participating households have benefitted, but the scale of benefits has been limited by the small volume of native potatoes marketed in the region. Additional benefits have accrued from the increased value attributed to native potatoes in local food systems. Perhaps the most significant outcome of the exercise has been that CAD has shifted its emphasis from production to market development and has strengthened its capacity to support market chain innovation and development among the region's small farmers.

Case 4. Developing new markets for yams (North Coast of Colombia)

Yams were introduced to the Caribbean region together with the slaves from West Africa. They are now one of the main crops grown by poor farmers on small plots of rented land in the northern coastal region of Colombia. Here, and in other parts of Colombia, the distribution of land holdings is extremely skewed, contributing to rural poverty and conflict. This social milieu, combined with the presence of drug traffickers, led to an eruption of rural violence at the end of the 1990s, which continued for nearly a decade. Despite the extreme insecurity, a few development organizations continued to work in the areas. One was the PBA Foundation, which has worked with small farmers in participatory agricultural research and development projects related to yams and other crops for nearly 15 years. In 2006, the PBA Foundation launched an exercise to improve the marketing of small farmers' commodities in the region, and it incorporated the PMCA into this process. The Alliance supported the Foundation's efforts by

providing training in the PMCA and backstopping the work with yams. Three potential areas for commercial innovation were identified: production of yam flour for specialty uses in cosmetology and baking; exportation of fresh yams to the USA; and domestic marketing of selected fresh yams. Applied technical and market research was carried out in these areas, business plans were developed, and new products were pilot tested with potential buyers. After completion of the PMCA exercise, in May 2009, the PBA Foundation has continued to work with local farmer organizations and has supported development of network of local associations to promote development of yam sector. Some progress has been made to improve the domestic marketing of selected yams. There have also been a few shipments of fresh yams to the USA, but development of this market has been limited by the recent appreciation of the Colombian peso and steep competition from other Caribbean suppliers. There is now interest in testing micro irrigation for off-season production and exports. Commercial testing of yam processing has been hampered by lack of funds for a pilot plant. The PBA Foundation continues to actively seek opportunities to advance the work begun with the PMCA, and has incorporated elements of the PMCA into its portfolio of participatory methods.

COMPARATIVE ANALYSIS

In this section, we analyze the case-study results in relation to six aspects of the PMCA.

Fidelity of PMCA implementation

In all cases, the main phases and steps of the PMCA methodology were implemented. However, there were some important *qualitative* differences in implementation across the cases. One of the main differences was the degree of involvement of different types of market chain actor. In most cases, the emphasis was on working with smallholders and their organizations. Relatively few business people (such as processors, and venders) were involved, and their participation was less active than that of smallholders. The main exception to this rule was the coffee processing case in San Martin, where processors and market agents were actively involved from the start. Here, the lead organization, Practical Action, has a tradition of value chain development work. In the other cases, the lead organizations' mandates focused on improving rural welfare through work with smallholders, and working in market chain development was quite a new experience. One feature of the coffee case that distinguishes it from the others is the large extent to which networking was promoted among diverse market chain actors, service providers, and political authorities in the regional government who were concerned with expanding the market access of regional products. In the other three cases, more effort has gone into strengthening farmer organizations than networking and relationship building among diverse stakeholders. In Oruro, the recent

marketing activities of SEDERA are beginning to build useful relations between dairy processors and retailers. This illustrates how relationships are built up over time and can take years to mature. In Northern Potosi, where the initial goal was for indigenous farmers to market their native potatoes in supermarkets, hotels, and other urban outlets, differences in language and culture appear to have hampered effective communication and problem solving.

In all the cases, work initially focused on a single group (smallholders in Northern Potosi and the north coast of Colombia, processing groups in Oruro and San Martin). In San Martin, networking expanded and deepened over time, during the PMCA exercise and afterward, mainly because of continued attention to this point from Practical Action and Papa Andina. In the other cases, multi-stakeholder collaboration appears to have been limited by the traditional focus of the facilitating organizations on smallholder development. Another common barrier to getting all the actors together in the same room to talk about marketing opportunities appears to have been differences in language and culture, which have been especially problematic in Northern Potosi.

Results of the PMCA

Useful knowledge was acquired by participants in each of the cases, along with useful contacts with other market chain actors and service providers. Smallholders report gaining valuable information on the needs and priorities of consumers as well as knowledge of other market chain actors. R&D organizations gained valuable information and perspectives on market innovation and development. Learning that occurred within the lead R&D organizations appears to be one of the most important results of the PMCA exercises. In particular, the local lead organizations in Northern Potosi and Oruro (CAD and SEDERA), gained valuable experience with market-chain innovation and development, and they now approach their development activities with a more integral market-chain perspective.

The most visible commercial innovation is the new brand of coffee marketed by the women's processing group in San Martin, Peru. Its success appears to have motivated several other groups to launch or upgrade their own brands of coffee. The new mozzarella cheese marketed under the *Vaquita Andina* brand in Oruro is another important commercial innovation. Work with the PMCA in this case has also motivated local dairy producers to diversify the types of cheese they produce and to upgrade their quality. In Northern Potosi, farmers have marketed small quantities of *Miskipapa* for three years now. The economic impact of these sales on farmers' welfare appears to be relatively small. However, the expanded marketing of native potatoes has also helped to increase the value of native potatoes in the eyes of both smallholders and consumers, which has contributed to efforts to conserve the biodiversity of native potatoes in the region.

The work with yams in northern Colombia has not produced a clearly defined commercial innovation to date. This may reflect the importance of developing a tangible new product with a brand name.

Commercial innovation has gone hand in hand with technical and institutional innovation. The new brand of coffee produced by the women's processing group in San Martin incorporated improved selection, roasting, grinding, and packaging. Similarly, local production of mozzarella cheese in Oruro required R&D to adapt an Argentine protocol to local environmental conditions and available coagulants. Sale of *Miskipapa* in Potosi and improved yams in Sincelejo has required farmers to modify their post-harvest practices, to improve selection and cleaning of harvested tubers.

The pursuit of commercial innovations has led groups in each case to seek changes in institutional arrangements. In San Martin, seven artisanal coffee processors have established an association to pursue common interests, representing an institutional innovation. In Oruro, in order to support high-quality dairy processing and efficient marketing, SEDERA has taken over these functions. In northern Potosi and in Sincelejo, in light of the small size of local farmers' organizations, there have been moves to establish regional networks of local groups that can perform marketing functions more efficiently and effectively.

The PMCA exercises have tended to strengthen farmers' organizations in each case. In San Martin, success with coffee marketing has helped consolidate the women's processing group and raise its visibility in public and policy circles as well as in emerging fairs and markets for organic produce. The group now plays a much more prominent role in public discussions on the local food system than previously. In the other three cases, farmers report having gained confidence in dealing with market agents, development professionals, and government officials.

Factors that have influenced implementation and results

Forces at play in the macro context appear to have strongly influenced the implementation and results of the PMCA. The pro-market policies of Colombia and Peru provided a more favorable environment for use of the PMCA than did the policies of the Bolivian government, which emphasize the role of the state and "communitarian socialism." The cases' more favorable agro-ecological environments in Colombia and Peru also appear to have favored implementation processes and results. In the Bolivian altiplano, where poverty is more severe than in practically

any other part of Latin America, there appear to be limits on the potential impact of development approaches that center on innovation in agricultural value-chains.

Characteristics of the market chain have also influenced PMCA implementation and results. In the cases involving coffee, and to a somewhat lesser extent dairy, it has been possible to mobilize extensive external knowledge to improve processing technology. In contrast, in the cases of native potatoes and yams, the global knowledge base is more restricted. And for yam, the available scientific knowledge is more difficult to mobilize for Colombian smallholders, because the main research center is in Africa¹ and very little scientific information on this crop has been translated into Spanish. Coffee and dairy products are also more amenable to processing and product differentiation than are potatoes and especially yams.

The attributes of participants involved in the different exercises have also had strong influences on PMCA implementation and results. It appears that two types of “champions” are essential for success: one type of champion is needed in the entity that initiates and facilitates the PMCA exercise; the other type is needed within the market chain itself. In the coffee processing case in Peru, Ivo Encomenderos (based in Practical Action) played a key role in identifying and supporting local actors and facilitating change processes. Delicia Guivin, founder and leader of the women’s processing group, played a key role within the market chain, in developing the new brand of coffee and in networking with others to develop the local coffee sector.

The local organizational and institutional environment also appears to have played a role. The relative strength of the women’s coffee processing group in San Martin provided a favorable springboard for innovation. In contrast, the recent organizational and management problems in community-based dairies in Oruro seems to have discouraged local herders from committing their time and energy to the PMCA.

The mandates, priorities, traditions, and established relationships of the entity that facilitates the PMCA appear to strongly influence the course of the work. The fact that CAD, SEDERA, PROINPA, and the PBA Foundation have traditionally worked with smallholders to improve rural wellbeing helps to explain why they have tended to continue working with smallholder organizations during the PMCA, rather than working more actively with market agents.

¹ The International Institute for Tropical Agriculture in Nigeria.

Institutionalizing use of the PMCA

Many members of the participating organizations see the value of implementing comprehensive PMCA exercises with other commodities, but have not done so, for lack of opportunities to include them in other donor-funded projects. When the PBA Foundation implemented the PMCA with yams, it also applied it in six other commodity chains with which it was working at the time. Since then, it has included informal market diagnoses in other projects. PROINPA is applying elements of the PMCA in the context of a large-scale Dutch-funded project. CAD and SEDERA report incorporating elements of the PMCA into their work.

Validity of the theory of change

The PMCA theory of change, or impact pathway (Exhibit 7), corresponds reasonably well with the types of changes observed. In each of the cases, there was an attempt to identify the main market chain actors, to identify the main problems and potentials in the market chain, to identify promising market opportunities, to involve market chain actors, to develop appropriate innovations, and to motivate public authorities to support pro-poor market-chain innovation and development. To the extent that these results have been obtained, there has been movement in the direction of the expected outcomes.

The cases have progressed to different points along this impact pathway, and many factors external to the PMCA itself – variables in the macro context, the nature of the market chain, characteristics of participants in the exercise, and the prevailing norms and practices – have influenced the degree of success of the exercise.

Contributions of participation to the results observed

Participation has been central to generation of the results observed. For example, a protocol for mozzarella production was introduced to Oruro by Argentine cheese experts, but it required an extensive local process of adaptation to local conditions, and all this work was done by local people from SEDERA and INPROLAC. In Peru, local participation and capacity development have been crucial for production of results with coffee and for empowerment of the womens' food processing group. This group, which gained experience and public recognition through its participation in the PMCA exercise, has later played important roles in the coffee processors' association and in organizing public events to promote the development of the local coffee market. In Colombia, participation of the manager of the Sincelejo market motivated him to organize market vendors in the market, in order to improve the flow of market produce and reduce price fluctuations. In Northern Potosi, farmers who were involved in the PMCA have been motivated to increase the diversity of their stocks of native potatoes, which they produce and

conserve *in situ*, on their farms. None of these results would have been possible without active participation of small farmers, processors, and others in the PMCA exercises.

CONCLUSIONS AND LESSONS

In this section, we present the main conclusions and lessons of the study and suggestions for improving future applications of the PMCA.

Fidelity of PMCA implementation

In all the cases, the main steps in the PMCA were implemented. However, in some cases there was limited engagement and commitment of some market chain actors. In the PMCA, market chain actors are expected to play a proactive, lead role in driving development of new business opportunities and generating demands for innovation. But this isn't always happen. This sort of engagement and *proactive leadership from within the market chain* is the essence of the "P" in the PMCA, it is a defining feature of the approach, as envisaged in the original protocol, distinguishing it from other market chain approaches. So ensuring the engagement of the business community is an area that merits very careful attention in future applications of the PMCA.

Results of the PMCA

In the cases studied, the PMCA has stimulated varying degrees of learning, interaction, innovative thinking, and practices, which in some cases have resulted in commercial, technological, or institutional innovations – new practices that have become mainstreamed in economic and social life. Many participants – including both poor farmers and small-scale market agents – have gained valuable new knowledge and experiences that have empowered them in their dealings with other market actors and service providers. Less progress, however, has been made in improving welfare, in terms of cash income.

These studies and other experiences (Devaux et al., 2009; Horton et al., 2010) indicate that the main benefits of the PMCA come not during the application of the approach but later on, as a series of ideas are tried, adapted, fail, and succeed. For this reason, follow-up support to innovating groups can be very valuable after the PMCA formally ends. It is also important to recognize that in areas of severe poverty, where households engage in multiple on-farm and off-farm activities just to survive, and where there is very little agricultural surplus for the market, approaches such as the PMCA that focus on innovation in a single value chain may have a limited measurable impact on overall household welfare.

Factors that influence success with the PMCA

In the cases studied, the success of the PMCA in fostering pro-poor market chain innovation has been influenced by numerous factors related to the macro context, the market chain, the participants, and customary rules and practices. The economic policy environment sets the stage for local development efforts, and can support or present challenges to use of value-chain development approaches such as the PMCA.

Successful innovation is more likely in some chains than in others. This highlights the importance of doing a thorough market analysis before investing heavily in market-chain innovation. Where the market surplus of a commodity is limited and strongly influenced by local natural and climatic factors, where the potential demand for new products is limited, or where the costs of introducing an innovation are high, the short-term results of the PMCA may be limited.

Personal factors also seem to be of critical importance. Results of these four cases highlight the importance of two types of “innovation champion”: (1) the facilitator in the R&D organization that initiates and supports the PMCA exercise; and (2) one or more individuals in the market chain who champion the innovation process. Without both these types of champion, results of the PMCA may be limited. Customary rules and practices also influence the success of the PMCA. For example, a history of failed development projects makes people skeptical and can discourage them from committing their time and creativity to a PMCA exercise.

Institutionalizing use of the PMCA

Several organizations that have participated in PMCA exercises have incorporated elements of the approach into their work. But few have adopted use of the PMCA *in toto*. An important result of participating in a PMCA exercise seems to be that individuals learn a new way of approaching problems – with a more comprehensive market perspective – which they apply in their future work. Most of the organizations involved in the four cases analyzed depend on external donors for a large part of their operational funding. In some cases they have been able to incorporate elements of the PMCA – for example the informal market diagnosis in Phase 1 – into new projects. In two cases (PBA Foundation and PROINPA) they have been able to obtain funding for comprehensive PMCA exercises in other market chains. In some cases, universities and research organizations have incorporated the PMCA into their academic curriculum. In future, it would be important to elaborate a strategy for institutionalizing use of the PMCA.

Contributions of participation

The learning and capacity development that result from participation in a PMCA exercise have a strong influence on the ultimate success and benefits of the exercise. This is partly because the most important results are produced after completion of the formal PMCA exercise, by local groups that continue with innovative activities. For this reason, it is crucially important to ensure the active participation of all relevant stakeholders, not just small farmers, but including other key market actors and service providers.

1. INTRODUCTION

The Andean Change Alliance operated from 2007-2010 as a regional alliance of agricultural research and development organizations and professionals in Bolivia, Colombia, Ecuador, and Peru. The Alliance explored and promoted the use of participatory methods in agricultural innovation processes to improve the livelihoods of poor farmers. Members of the alliance experimented with a number of participatory methods and have monitored their implementation and results, in order to improve, document, and disseminate the methods, and to produce evidence of their results. One of the participatory methods that national and local organizations affiliated with the Alliance experimented with was the “Participatory Market Chain Approach”. The PMCA brings small farmers together with market chain actors and agricultural service providers in order to stimulate pro-poor innovation in value chains.

This Working Paper reports on a study carried out in 2010 and early 2011 to document and analyze experiences with the PMCA and results in four cases. The study addressed the following seven topics:

1. Fidelity of implementation of the PMCA
2. Results of the PMCA (particularly outcomes)
3. Factors that have influenced PMCA implementation and results
4. Extent to which the PMCA has become institutionalized
5. Validity of the “program theory” underlying the PMCA
6. Contributions of participation to pro-poor innovation
7. Lessons for improving future applications of the PMCA

The remainder of this Introduction presents background information on the Alliance and on the PMCA. In Section 2, we outline the conceptual framework that guides the study and summarize the methods and information sources employed. Section 3 presents highlights of four cases in which the PMCA has been employed in Bolivia, Colombia, and Peru. In Section 4, we discuss the case-study findings in relation to the study objectives. In the final section, we formulate conclusions related to the use and results of the PMCA in different contexts.

The Andean Change Alliance

The low level of adoption of new technologies and the persistent poverty of small farmers has stimulated the restructuring of agricultural innovation systems in many parts of the world. In the Andean region of South America, agricultural researchers and development professions have experimented with a range of participatory methods for improving the linkage of small farmers to

agricultural researchers and to market chains. In this context, in 2006, the Alliance was established, as a four-year program supported by the Department for International Development (DFID) of the UK government, to contribute to the improvement of sustainable livelihoods in poor communities, by fostering the use of participatory methods in innovation processes.

The Alliance was a collaborative regional program operating in Bolivia, Colombia, Ecuador and Peru. It was coordinated by two international centers affiliated with the Consultative Group on International Agricultural Research (CGIAR): the International Tropical Agricultural Research Center (CIAT: www.ciat.cgiar.org) and the International Potato Center (CIP: www.cipotato.org). Participants included professionals in local, national, and international research and development organizations. The goals of the Alliance 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

To accomplish its goals, the Alliance organized 5 teams that were coordinated by different partners (Exhibit 1).

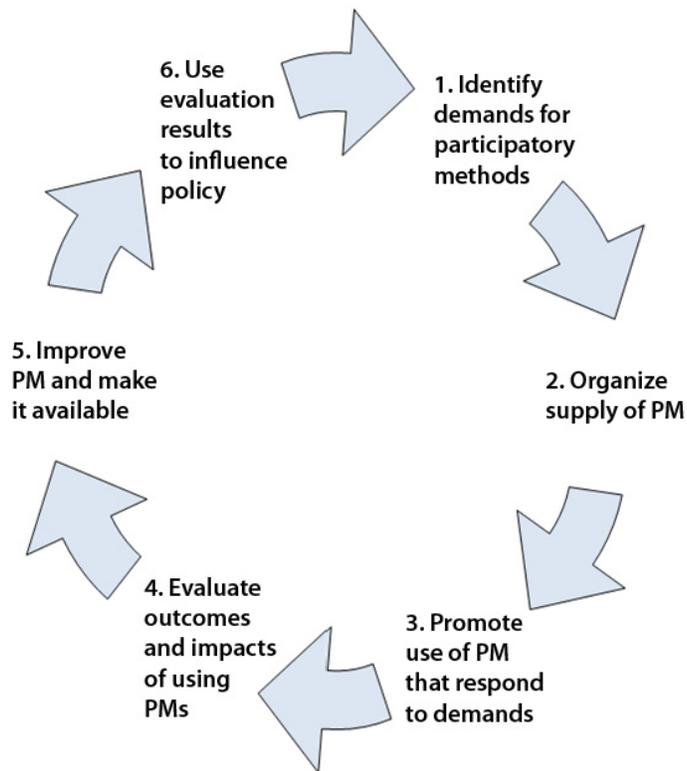
Exhibit 1. The Andean Change Alliance: temas and the coordinating organizations.

Team	Coordinating body
Participatory methods	Consortio Andino de Innovación Participativa (www.corporacionpba.org/consorcioandino)
Agri-business	Papa Andina (www.papandina.org)
Knowledge sharing	Asociación Colombiana de Organizaciones no Gubernamentales para la Comunicación Vía Correo Electrónico (COLNODO) (www.colnodo.apc.org)
Monitoring and evaluation of outcomes and impacts	Regional Platform for Evaluation Capacity Building in Latin America and the Caribbean (PREVAL) (www.preval.org)
Policy influence	Oficinas para Estudio del Agro (OFIAGRO), Ecuador

The Alliance's work was guided by a strategy cycle that begins with an assessment of demands for participatory methods in innovation systems (Exhibit 2). Steps 2 and 3 include organization of the supply of appropriate participatory methods, and their practical application. Step 4 is to

evaluate the results of use of participatory methods. In Step 5, based on evaluation results, the methods are improved, documented, and disseminated as international public goods. Finally, in Step 6, evidence of the impacts of participatory methods is used to influence public policies.

Exhibit 2. Andean Change Alliance strategy cycle.



The Alliance experimented with a number of participatory methods concerned with such things as participatory monitoring and evaluation, participatory varietal selection, participatory technology evaluation, empowerment of small farmers, local agricultural research committees, planning for evidence-based policy influence, strengthening organizational capacity for innovation, and market chain development. Of these methods, the PMCA was among the best documented and most widely used.

The Participatory Market Chain Approach

The PMCA was developed by the Papa Andina regional initiative (www.papandina.org) working with social scientists from the International Potato Center (CIP) and collaborators in Bolivia and

Peru. The Alliance's work with the PMCA was led by the agri-business team, coordinated by Papa Andina. Within the Alliance, the PMCA was applied in a wide range of types of market chain, including those for processed dairy products (Oruro, Bolivia); native potatoes (Riobamba, Ecuador and Potosi, Bolivia); fruits and vegetables (Santa Cruz, Bolivia); coffee (Tarapoto, Peru); and yams (Sincelejo, Colombia). In this section we provide information on the development and basic features of the PMCA.

Origins of the approach

Various approaches have been proposed to improve the prospects of small farmers in agricultural markets, including collective action via farmer organizations and cooperatives (Shepherd, 2007; Meinen-Dick et al., 2009; Markelova et al., 2009; Reardon et al., 2008). Market chains in which smallholders participate are often characterized by conflictive relationships between market chain actors, low innovation rates, and non-compliance with contracts, which put the whole chain at risk (Bode et al., 2008). The PMCA engages small farmers, market agents, and agricultural service providers in a participatory action research process aimed at fostering pro-poor market-chain innovation. The goal is to improve the performance and competitiveness of the market chain in ways that benefit small farmers as well as other market chain actors.

The PMCA emerged from work that began in 2002, when CIP social scientists, Papa Andina, and the Project for Potato Innovation and Competitiveness in Peru (INCOPA Project) began working with a participatory approach to stimulate agricultural innovation known as 'Rapid Appraisal of Agricultural Knowledge Systems' (RAAKS). This approach, developed by Engel and Salomon (2003), brings diverse stakeholders together in a flexible, participatory process to stimulate social learning, build trust, and foster innovation among market chain actors.

Papa Andina was searching for a practical approach to bring market chain actors together to develop innovation capacity in market chains and to produce market-led innovations. Working in the context of the market chain spurred the development of new methods – for example for building trust among people who previously distrusted one another, and for developing new products. A new approach emerged that came to be known as the 'Participatory Market Chain Approach'.

In 2003, when the INCOPA market-chain work was reviewed in a participatory evaluation (Thiele et al., 2007), participants from Bolivia decided to begin experimenting with the approach back home. Over the next few years, based on the work in Bolivia and Peru, the PMCA was developed

and documented and guides were prepared for PMCA trainers and users (Bernet et al., 2006; Antezana et al., 2008; Bernet et al., 2011).

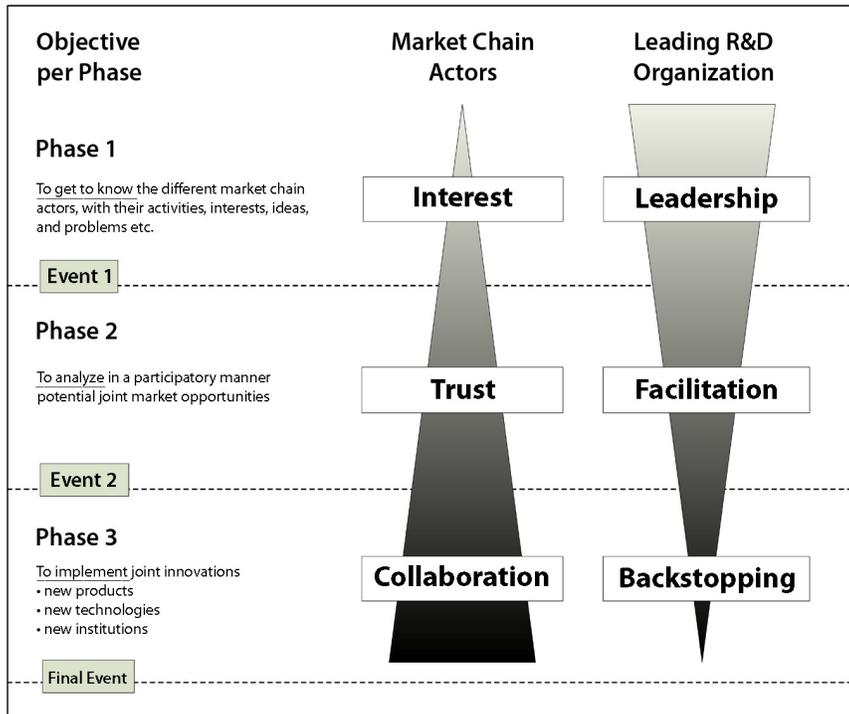
Main features of the approach

The PMCA employs participatory action research to identify business opportunities in market chains and then carry out research and development activities to exploit these opportunities in ways that will benefit small farmers as well as others involved in the market chain. Action research is a reflective process of progressive problem solving led by an applied researcher working with a team or as part of a community of practice. This approach has been widely used in organizational and community development work. There are many variants, but an applied researcher usually works with an organization's members to define a problem that is amenable to applied research and then to carry out the research needed to resolve the problem. Most of the research is generally done by members of the organization or community, who develop applied research capacities during the action-research process.

The PMCA applies the principles of action research to foster market chain innovation around new business opportunities. The PMCA engages those who make their living from a market chain – the so-called 'market chain actors' – and agricultural service providers (including, for example, agronomists, post-harvest technicians, marketing specialists, extension agents, and enterprise development professionals) in facilitated group processes in which market opportunities are identified and assessed, and innovations are developed. The PMCA is implemented in three phases:

- Phase 1. Familiarization with the market chain and the key actors
- Phase 2. Joint analysis of potential business opportunities
- Phase 3. Development of market-driven innovations

As illustrated in Exhibit 3, a research or development organization typically initiates work with the PMCA. Early steps include selecting the market chains on which to work, identifying potential research and development (R&D) partners and carrying out exploratory, diagnostic market research. Key goals of Phase 1 are to become familiar with market chains and market chain actors, and to motivate market chain actors to participate in the PMCA process. In Phase 2, representatives of the R&D organization facilitate meetings that aim to build up mutual trust and knowledge sharing among participants. In Phase 3, the market chain actors work together to develop new market processes or products, with support from R&D organizations.

Exhibit 3. Three-phase structure of the PMCA.

Source: Bernet et al., 2006.

During Phase 1, diagnostic research is carried out in order to become familiar with key market chain actors and understand their interests, problems and ideas. This phase is expected to take two to four months and may involve 20 to 40 interviews with diverse market chain actors. This phase ends with a public event that brings together individuals who have been involved in the PMCA process so far, including market chain actors and representatives of research organizations and other service providers, to discuss results of the market survey and to exchange ideas. Individuals who have not been involved so far are also invited, to share results with them, to stimulate their interest in the PMCA process, and motivate them to participate in future activities.

In Phase 2, thematic groups with market chain actors playing a key and increasing role, are established to explore potential market opportunities. The lead R&D organization facilitates group meetings where market opportunities are identified and discussed. The main challenge during this phase is to keep participants focused on market opportunities (rather than, for

example, production problems). Six to ten meetings may be needed to analyze potential market opportunities. In some cases, specialized market studies may be needed to complement the group work. At a final event, the market opportunities are discussed with a wider audience and new members with complementary knowledge and experience are encouraged to join Phase 3.

Phase 3 focuses on the activities needed to launch specific innovations. By this time, market chain actors should be playing the leading role. The time required may vary depending upon the complexity of the innovation, the capacity of the group, and biophysical, socio-economic, and institutional conditions. A rough estimate of the time needed, based on experience in Bolivia and Peru, is three to six months. Phase 3 closes with a large event to which a much wider group is invited, including for example, political officials, donor representatives, and members of the press.

Exhibit 4, developed by the Alliance team on the basis of the *PMCA User Guide* and the Guide for Trainers (Bernet et al., 2006; Antezana et al., 2008) summarizes key features of the PMCA.

2. STUDY OBJECTIVES AND METHODS

The study reported on here was conducted by ten individuals who have been involved in one way or another with the development or application of the PMCA. Except for the lead author (Horton), all the other authors of this paper were directly involved with the work of the Andean Change Alliance. For this reason, conducting the study involved reflection on our own work as well as *reality-checking*, based on information collected from other sources. Brief resumes of the authors, which indicate their roles within the Alliance, are presented in the section titled *About the Authors* at the end of the report.

Study objectives

This study has seven objectives:

1. Evaluate the fidelity of the PMCA implementation process
2. Document results of the PMCA
3. Identify key factors that influence the implementation and results of the PMCA
4. Determine the extent to which use of the PMCA has become institutionalized
5. Evaluate the validity of the PMCA theory of change
6. Identify contributions of participation to pro-poor innovation
7. Draw lessons for improving the PMCA and its future applications

Exhibit 4. Protocol for evaluating the quality of implementation of the PMCA.

Activity	Quality
Phase 1. Diagnostic phase (3 months)	
Mapping of actors	The facilitator leads activities that generate the interest of diverse market chain actors in participating in the PMCA exercise. The principal market chain actors are identified and known.
Qualitative diagnosis of the market chain, to identify problems, potential business opportunities	
Public event at end Phase 1	The principal market chain actors participate in the event. Potential business opportunities are identified. Results of the event are documented in a meeting report.
Phase 2. Analysis of business opportunities (3-4 months)	
Meetings approx. every 15 days with diverse market chain actors, to analyze opportunities	Interaction among market chain actors to generate confidence among them. Development of at least one business plan.
Market studies	
Analysis of costs	
Business planning	
Public event at end of Phase 2	Progress is shared and new participants / allies are included, who can enrich joint activities.
Phase 3. Implementation of business opportunities (3-4 months)	
Meeting approx. every 15 days with diverse actors, to implement business opportunities	Joint activities / collaboration to implement new business opportunities with market chain actors playing a leading role. Communication and negotiation among market chain actors. Small farmers increase their knowledge of the market chain.
Specific market studies	
Specific technical studies	
Product development	
Public event at end of Phase 3	Innovations are launched. Members of the press, opinion leaders, and relevant political authorities participate, to ensure ample communication and diffusion of results and support for the PMCA exercise.

Note: Those who lead and facilitate PMCA exercises should be trained (based on the PMCA Trainers' Guide) and supervised at key points in the implementation process, such as at the end-of phase public events. Facilitators should ensure the ample participation of market chain actors, especially small farmers, in decision-making during Phases 2 and 3.

In these objectives, the term *fidelity* refers to the extent to which the PMCA has been implemented in the four cases according to the procedures outlined in the Protocol. The *validity* of the theory of change refers to the extent to which faithful implementation of the procedures laid out in the protocol has led to the expected outcomes.

Conceptual frameworks

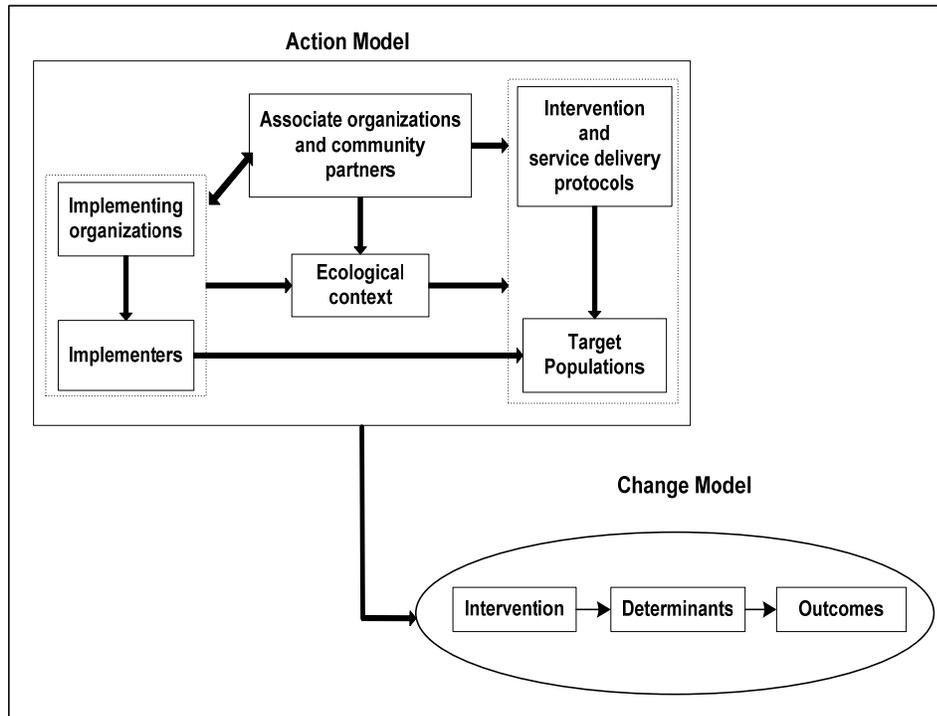
The design of this study, the selection of methods, and the collection and analysis of information was guided by a number of conceptual and analytical frameworks that are introduced in the following paragraphs.

Program Theory framework

Two main conceptual frameworks are used. The first one is “program theory,” defined by Chen (1990: 43) as “a specification of what must be done to achieve the desired goals, what other important impacts may also be anticipated, and how these goals and impacts would be generated”. As illustrated in Exhibit 5, a program theory has 2 main components: an action model and a change model. The action model is a systematic plan for organizing resources, staff, and relationships in order to deliver the intervention faithfully. The change model is a broader framework that links the program’s activities and outputs to the expected outcomes and impacts, and that explains how and why the intervention is expected to lead to the desired changes (Chen, 2005: Chapter 2).

In the present study, the PMCA Protocol (Exhibit 4) is a type of “action model” that indicates the types of action that are supposed to take place during application of the PMCA and how they are to be carried out. We employ this model to analyze the fidelity of implementation of the PMCA in the 4 cases (i.e., to address study objective 1).

Before conducting baseline studies and beginning field-work with the PMCA, members of the Alliance articulated an “impact pathway” for the PMCA (Exhibit 6) using a methodology known as “Participatory Impact Pathway Analysis” (PIPA) (Douthwaite et al., 2007). This allowed them to develop a common understanding about the activities to be carried out and the expected results. As can be seen in Exhibit 6, PMCA exercises were expected to produce five direct outputs, including: an actor map and a qualitative diagnosis for the market chain, work plans, identified opportunities for building consensus and synergy among stakeholders, and public officials who are informed about the importance of the market chain. The activities conducted during the application of the PMCA and these outputs were subsequently expected to trigger processes that would result in a number of outcomes, including such things as increased knowledge of the market chain, better use of market information, commercial, technological, and institutional innovations, increased prices paid to smallholders, and increased incomes. This impact pathway corresponds to Chen’s “change model.” We employ this model to analyze the extent to which the PMCA has generated the expected results and other, unanticipated results (i.e., to address study objectives 2 and 5).

Exhibit 5. Conceptual framework of program theory (basic form).

Source: Chen (2005: 29, Figure 2.1)

Institutional Analysis and Development framework

The second framework we employ is the “Institutional Analysis and Development (IAD) Framework” – a general framework for understanding institutions developed by Elinor Ostrom and colleagues at the Workshop in Political Theory and Policy Analysis at Indiana University, USA (Ostrom, 2005: 15; 2010: 6). The IAD framework has three main components:

1. An *action arena* in which individuals interact.
2. Three groups of *exogenous variables* that influence the action arena (biophysical/material conditions, attributes of participants, and rules in use).
3. The *outcomes* resulting from these interactions.

In a study of collective action for market chain innovation in the Andes, Devaux et al. (2009) add a fourth group of external variables that corresponds to the “external environment.” These authors highlight three processes within the action arena, which correspond to social learning, social capital formation, and joint activities. They focus on two types of outcome: strengthened innovation capacity; and commercial, technological and institutional innovations.

For the present study, we use the IAD framework as modified by Devaux et al. (2009), and with a few additional changes (Exhibit 7). The central focus of attention in our framework is what we refer to as the “innovation arena” within a PMCA exercise, where facilitated interactions among participants lead to social learning, social capital formation, and joint innovation processes.

The action arena is influenced by four sets of exogenous variables:

- The macro context (government policies, markets, and general socio-economic conditions)
- Biophysical and technological characteristics of the market chain
- Attributes of market chain actors and service providers
- Formal and (mainly) informal norms and customs that govern the behavior of participants

In our framework, outcomes refer to innovations and changes in innovation capacity that may result from a PMCA exercise. With slight modification, the same framework could be used to analyze market chains. Each category in the framework would be focus on the market chain itself, rather than a PMCA exercise. The most significant change would be that outcomes would refer to performance variables for the market chain, such as efficiency, transaction costs, and the distribution of benefits among chain members.

Exhibit 6. Hypothesized PMCA impact pathway.

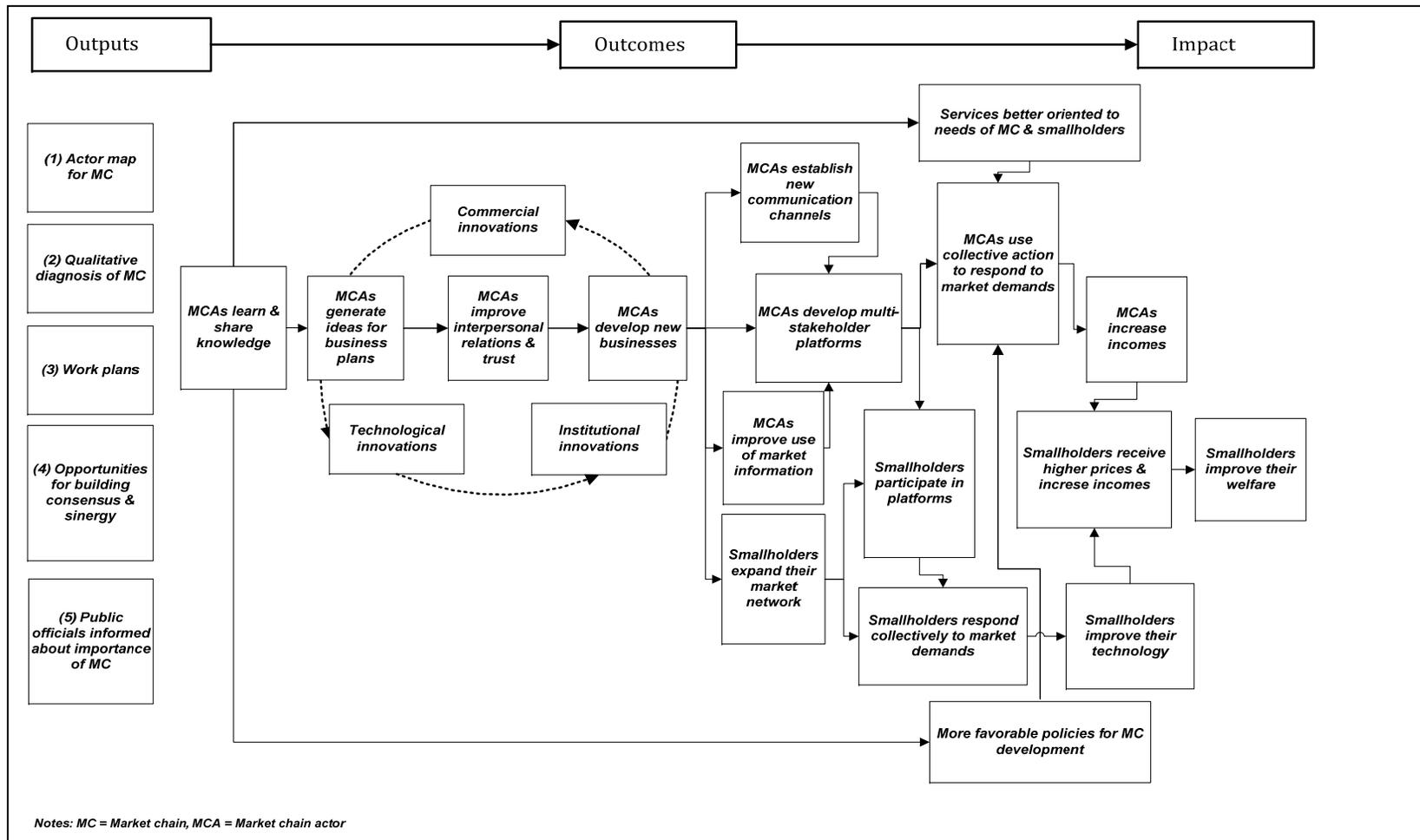
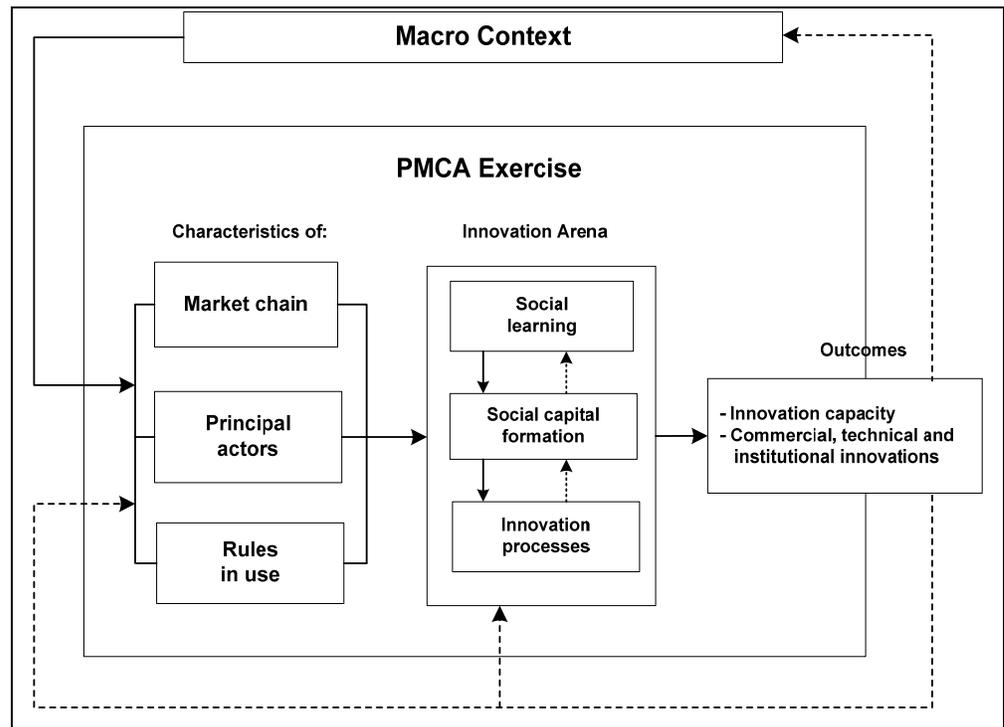


Exhibit 7. Framework for analyzing PMCA applications.



Source: Based on the IAD Framework (Orstrom, 2005; 13-15; 2010:6) as modified by Devaux (2009).

As indicated by the broken lines in Exhibit 7, the outcomes may influence the future processes that take place within the action arena. For example, successful development of new markets for native potatoes in Peru has motivated small farmers and other market chain actors to continue working together on other joint activities. Over time, outcomes may also influence the four groups of exogenous variables. When they observed successful innovation processes with native potatoes, Peruvian policy makers increased their support for work with this crop.

The framework for analyzing PMCA applications (Exhibit 7) guided our analysis of the factors that have influenced implementation and results of the PMCA in the cases studied (study objective 3).

Innovation systems concept

An innovation system can be defined as “a network of organizations, enterprises, and individuals focused on bringing new products, news processes, and new forms of organization into social and economic use, together with the institutions and policies that affect their behavior and performance” (World Bank, 2007: xiv). In this study, innovation system thinking was especially

useful when addressing questions related to the outcomes of the PMCA (objective 2), the contributions of participation in generating outcomes (objective 6), and the degree to which the use of the PMCA has become institutionalized (objective 4).

Concept of “high-quality lessons learned”

Patton (2001: 334) defines high-quality lessons learned as, “principles extrapolated from multiple sources and independently triangulated to increase transferability as cumulative knowledge or working hypotheses that can be adapted and applied to new situations” (page 334). The significance and utility of lessons increases with the number of supporting sources, the rigor of supporting evidence, and the extent of triangulation of supporting sources. We used these ideas in formulating lessons for each case and for the study as a whole (Objective 7).

Selection of cases

This study employs a comparative case study methodology, which according to Yin (2009: 2) is the preferred social science research method when “how” or “why” questions need to be answered, the investigator has little control over events, and the focus is on a contemporary phenomenon within a real-world context.²

Under the umbrella of the Alliance, there were eight applications of the PMCA (Exhibit 8). *In Bolivia*, the PROINPA Foundation coordinated the overall effort with the PMCA. A local NGO, SEDERA, took the lead in one application of the PMCA with dairy products in Oruro. Another local NGO, CAD, led a second application of the PMCA with native potatoes in North Potosi. The agricultural research organization, CIAT in Santa Cruz, initiated applications of the PMCA with fruits and vegetables in the eastern lowlands. The two highland applications were completed, but the two applications in Santa Cruz were not. *In Colombia*, the PBA Foundation coordinated work with the PMCA on the north coast, in a region known as the Montes de Maria. The Alliance supported one PMCA application to improve the marketing of yams; the PBA Foundation took advantage of local interest in the PMCA and the training provided to apply the PMCA in market chains for cassava, bananas, fisheries, sesame, honey, and handicrafts. All of these applications were completed. *In Ecuador*, the Marco Foundation led one successful application of the PMCA with native potatoes, in the southern highlands of Riobamba. *In Peru*, the international NGO Practical Action³ initiated two exercises with the PMCA: one with coffee in the high jungle area of

² Yin (2009) is perhaps the most authoritative single volume on case study design and methods. Stake (2006) provides additional methodological guidance and insights for multiple case study analysis.

³ Practical Action was formerly known as the Intermediate Technology Development Group (ITDG).

the San Martin department and one with dairy products in the northern highlands (Cajamarca). The coffee work was completed but the dairy work was not.

Exhibit 8. Applications of the PMCA promoted by the Andean Change Alliance.

Case	Completed	Included in this study
Bolivia		
Developing and marketing new dairy products in Oruro	Yes	Yes
Conserving and marketing native potatoes in Northern Potosi	Yes	Yes
Fruits in Santa Cruz	No	No
Vegetables in Santa Cruz	No	No
Colombia		
Developing new markets for yams (North Coast of Colombia)	Yes	Yes
Ecuador		
Promotion of native potatoes, Riobamba	Yes	No
Peru		
Marketing high-quality coffee in San Martin	Yes	Yes
Dairy products, Cajamarca	No	No

Of the eight PMCA exercises initiated, five were completed. A few hypotheses can be offered for non-completion of three of the cases. Dairy products in northern Peru was one of the first cases implemented, and supervision and facilitation were less than ideal. Rather than identifying a *market* opportunity, the group focused on a production problem that was not the appropriate focus of a PMCA exercise, and so the Alliance shifted its support to the coffee case in Tarapoto. In Santa Cruz, Bolivia, the agricultural research organization attempted to shorten the PMCA implementation period by skipping most of Phase 2, which is essential for building trust among market chain actors. They jumped directly to joint action between farmers and processors, and were dismayed when the farmers were not prepared to accept a contractual arrangement to supply a catering company with peaches at a fixed price, even though it was apparently favorable. The termination of both exercises illustrates the need to adhere to the intervention protocol.

In this Working Paper we report on a study of the four completed cases that were deemed to offer the richest information and the most valuable lessons for future applications of the PMCA. One reason for limiting the study to four cases was the significant cost of including a fifth case in another country.

Information sources

This study forms part of the larger evaluation effort of the Alliance, which has included the collection of baseline information at field sites, monitoring of activities, and evaluation of

outcomes. These evaluative activities have generated a wealth of information on the cases where the PMCA has been applied.

Prior to beginning the collection of information, a case-study protocol was prepared that includes the research questions, an outline for case-study reports, procedures for planning and conducting field visits, documentation to be reviewed prior to the visits, and procedures for triangulation of information sources, interpreting findings, and reporting. An evaluation matrix illustrates the linkage between the study objectives, analytical frameworks, and information sources (Exhibit 9). Before the field visits, the principal investigator (Horton) also interviewed key participants in the Alliance who were involved with testing the PMCA, monitoring its implementation, or evaluating its results. He also assembled and read key documents on the goals, strategies, and evaluation procedures of the alliance; the PMCA methodology; and the cases (Annex 1).

Horton made three field visits. In July he traveled with Gaston Lopez to Tarapoto, Peru. In early August, he traveled with Guy Hareau to Bolivia, to visit Cochabamba, Oruro and Llalagua (Northern Potosi). In August, he traveled with Lopez to Bogota and Sincelejo, Colombia. The site visits, organized by local collaborators, were from 3 – 5 days in length, and involved interviews with key participants in the PMCA exercises and with other stakeholders in the relevant market chains and local development efforts (Annex 2). A special effort was made to contact poor farmers and small-scale processors who were the intended primary beneficiaries of the PMCA.

At the end of each field visit the case study protocol was revised. In our first visit, to Tarapoto, we worked up to the last minute collecting evidence for the case study. In retrospect, we should have left time to pull together our thoughts and discuss them with key participants, to get their feedback on our “first impressions.” For the subsequent visits to Bolivia and Colombia, we left a full day for reflection, synthesis, feedback, and dialogue with local actors, and all parties found these exercises valuable.

After the visits to the four field sites, a mini-workshop was organized at CIP headquarters, in Lima, to present initial results of the study and get feedback from interested parties – mainly from members of the Alliance, but also from individuals in Papa Andina, who had been involved in developing and applying the PMCA in other settings. During the workshop, there was an audio link with collaborators in Bolivia and Colombia, which allowed the results to be shared more broadly and feedback to be provided from a broader range of stakeholders. In November, during a workshop on evaluation of outcomes and impacts, Horton presented a second progress report

on the study, and received substantial feedback from participants. At this time, he also interviewed key individuals familiar with the Bolivian, Colombian, and Peruvian cases. Horton took the lead in drafting the study report, which was then critically reviewed, revised, corrected, and completed by the co-authors.

Exhibit 9. Relationship between study questions, analytical framework approaches, and information sources.

Study objective	Analytical framework & approach	Information sources
Evaluate the fidelity of the PMCA implementation process	Program theory: Compare actual implementation processes against PMCA Protocol	Reports on activities, events & process monitoring Key informant interviews
Document results of the PMCA	Program theory & IAD framework: Probe for results in relation to hypothesized changes	All project documents Key informant interviews
Identify key factors that influence the implementation and results of the PMCA	IAD framework: Explore factors suggested by "Framework for analyzing PMCA applications"	Monitoring and evaluation reports Key informant interviews
Determine the extent to which use of the PMCA has become institutionalized	Use institutional systems theory to guide analysis	Key informant interviews Institutional documents
Evaluate the validity of the PMCA theory of change	Program theory: Compare actual results against expected results in hypothesized impact pathway	Project plans M&E reports Key informant interviews
Identify contributions of participation to pro-poor innovation	Use innovation systems theory to guide analysis	Key informant interviews
Draw lessons for improving the PMCA and its future applications	Systematic lesson learning	Key informant interviews Group interviews & workshops

3. CASE STUDY REPORTS

Introduction

This section outlines the national context of each case and then reports on the four case studies. Each case-study report includes information on the context of the PMCA exercise, its implementation, the outcomes, conclusions, and suggestions for improving future implementations of the PMCA. Case-study reports have the following structure:

- Context of the PMCA exercise
 - Macro context
 - Market chain
 - Market chain actors and service providers
 - Norms and customs
- Implementation of the PMCA exercise
 - Participants in the PMCA exercise
 - Timeline and activities
- Outcomes of the exercise
 - Changes in knowledge, attitudes, and skills
 - Commercial, technological, and institutional innovations
 - Inclusion, empowerment, and wellbeing
 - Institutionalization of the PMCA
 - Prospects for the future
- Conclusions and suggestions for improvement

National context

An important feature of the macro context of each case is the national setting context in which it developed, key features of which are described here.

Peru

Peru has a population of about 30 million, with an average percapita income of just under \$5,000 (Exhibit 10). The country has three distinct geographical regions. The narrow arid Pacific coast west of the Andes has just 10% of the country's land area and 52% of the population. The high Andean mountain range has 32% of the land and 36% of the population. The Amazonian lowlands to the east has nearly 60% of the country's land area but only about 12% of the population.

Exhibit 10. Basic demographic and economic indicators, Bolivia, Colombia, Peru.

Variable	Bolivia	Colombia	Peru
Total population (millions), 2009	10	46	29
Percent rural population, 2009	34	25	29
Gross domestic product per capita (current US\$), 2009	1,758	5,126	4,469
National poverty rate (%), 2007 ¹	60	46	39
Gini index, 2007 ²	57	58	51

Sources: www.worldatlas.com and <http://data.worldbank.org>.

Notes: ¹ Percent of population living below the national poverty line. ² An indicator of the inequality of income distribution; a higher number means more unequal distribution of income.

Historically, Peruvian incomes have been highly concentrated among urban residents of European descent on the coast (particularly Lima), and rural peasants in the Andean highlands have lived in poverty. The distribution of incomes has improved in recent years, but about one-third of the population is still considered to be poor.

Peru has 25 regional governments, each of which has a president and a council. Regional governments plan and execute public investment projects, promote economic activities, and manage public property. Peruvian economic policies have varied widely in recent decades. The government of Juan Velasco Alvarado, from 1968-1975, introduced radical reforms, including an agrarian reform, expropriation of foreign companies, introduction of an economic planning system, and the creation of a large state-owned sector. These measures failed to redistribute incomes significantly. In the 1990s, the government of Alberto Fujimori ended price controls, protectionism, restrictions to foreign direct investment, and state ownership of companies. The more recent governments of Alejandro Toledo and Alan Garcia have continued these macro policies. The economy has benefitted from the recent boom in international commodity trade and prices.

Bolivia

Bolivia is a landlocked country in central South America. Its geography is varied, with high Andean peaks and the altiplano (high tableland) in the west and lowlands in the eastern Amazon Basin. Bolivia's population is estimated at 10 million, of which about one-third live in rural areas. Despite being rich in natural resources, Bolivia is one of the poorest and least developed countries in Latin America. Average income is under \$2,000 percapita and about three-fifths of the population live below the poverty line. Political instability and difficult topography have constrained efforts to modernize the agricultural sector. Mining, especially the extraction of natural gas and tin, currently dominates Bolivia's export economy.

Governmental reforms since the 1990s have including administrative decentralization, introduction of intercultural bilingual education, agrarian legislation, and privatization of state-owned businesses. In 2005 Evo Morales was elected Bolivia's first president of indigenous descent, and in 2009 he was re-elected with 64% of the vote. Morales' administration has supported empowerment of indigenous groups and their increased participation in political and economic decision-making. It has also taken strong stands on protecting national resources, ranging from petrochemicals to native crops. The Bolivian economy has benefitted from recent increases in commodity exports and prices. There has been a moderate decrease in income inequality.

Since 2006, Bolivian social and economic policies and programs have favored poverty reduction, food security and sovereignty, and indigenous interests, over commercial interests and market-led economic development. In this context, farmer organization has been seen as a way of leveling the playing field for small farmers vis-à-vis market agents and industrial processors. An important component of the government's poverty reduction effort is a school breakfast program. Efforts are made to obtain local foods for the school breakfasts, but in many poor highland areas it has proven difficult to obtain regular daily supplies of the needed ingredients. Municipalities are still encouraged to buy local inputs for the school breakfast programs.

Colombia

With a population of over 45 million, people, Colombia has the second largest population in South America, after Brazil. Colombia's economy – the fourth largest in the region – grew steadily in the latter part of the twentieth century, and since 2000, growth has been even more rapid. Imports and exports are at record levels, and the inflow of dollars has resulted in a substantial re-valuation of the Colombian peso in recent years. Average GDP per capita is about \$5,000. However, inequality and unequal distribution of wealth are still widespread. There has been a decrease in the poverty rate in recent years, but around half of the population continues to live under the poverty line. Income inequality in Colombia, measured by the Gini coefficient, is among the highest in Latin America.

Colombia has a long tradition of constitutional government. Nevertheless, tensions have frequently erupted into violence. Since the 1960's, government forces, left-wing insurgents and right-wing paramilitaries have been engaged in the continent's longest-running armed conflict. Fuelled by the cocaine trade, this escalated dramatically in the 1980s. The violence has decreased significantly in recent years, with paramilitary groups being demobilized and the guerrillas losing

control in many areas where they once dominated. Nevertheless, Colombia still has one of the world's highest risks of terrorism. It is estimated that around one-third of the people in Colombia have been affected in some way by the ongoing armed conflict. In recent years, particularly during the administration of Alvaro Uribe (2002 – 2010), Colombia has aggressively pursued a market-led, or neo-liberal economic development strategy coupled with social programs aimed at integrating marginal populations into the socio-economic mainstream and pacifying rural areas.

Case 1. Developing a local market for high-quality coffee (San Martin, Peru)

Context of the PMCA exercise

The international non-governmental organization (NGO) Practical Action has supported development of the coffee sector in San Martin Department since the 1990s. A study commissioned by the Food and Agriculture Organization of the United Nations (FAO) in 2005 identified “special coffee” as one of three strategic sectors for small-farm development and marketing in Peru, because of the perceived potential for developing the coffee sector, the high incidence of poverty in Peru's high jungle areas, where coffee is grown, and the potential benefits for small farmers and processors. For these reasons, when the Alliance approached Practical Action to test the PMCA in Peru, the NGO proposed working with the market chain for coffee produced by small farmers in San Martin.⁴

Macro context

Coffee exports have increased substantially over time, and coffee is now Peru's most valuable agricultural export. Peru is the world's leading exporter of high-quality, organic “specialty” coffees. Paradoxically, the domestic market for coffee is minuscule. Only about 5% of the coffee produced is consumed in Peru, and average coffee consumption per capita is only about 0.5 kg per year. Most of the coffee consumed in Peru is instant coffee, and much of this is imported.

San Martin Department, on the eastern slopes of the Andes in a humid forest zone characterized by a high level of biodiversity, is one of Peru's major coffee-producing regions and one of the sources of Peru's best quality coffee. However, very little coffee is consumed in the region, partly because of negative beliefs and associations. Many people associate coffee consumption with insomnia, stomach problems and nervousness. Few people consume coffee regularly; one of the main occasions it is consumed is during all-night wakes and funerals. In addition to coffee, the main crops grown in the region are rice, cassava, bananas, sugar cane, oil palm, maize, and

⁴ Practical Action also proposed work with dairy products in northern Peru.

cassava. Most farmers are small and poor, and they use few purchased inputs. When yields decline, farmers abandon fields and shift to new areas, returning to the same fields only after several years.

Most of the local population has migrated into the area from neighboring highland areas where coffee cannot be grown and is seldom consumed. Immigration has been especially intense since the 1980s, when terrorism and counter-terrorism measures ravaged rural highland areas.

A number of government agencies and NGOs promote development in the area. A common goal is to develop sustainable production systems that protect the environment while improving the welfare of small farmers. Another concern is to offer farmers profitable alternatives to production of coca, which fuels the international narcotics business.

Market chain

The coffee produced in San Martín enters two distinct, but interrelated, market chains. The dominant chain – accounting for more than 90% of the coffee produced – exports unprocessed coffee to the USA and Europe. A much smaller chain channels residual, lower quality coffee to processors and market agents who supply domestic markets, mainly in the nation's capital, Lima, and in Chiclayo, a large city on the north coast. Although the domestic market chain handles a much smaller volume of coffee, many more Peruvian market chain actors participate in this chain.

Within the export market chain there are two sub-chains. The main one has a sequence of three (sometimes four) private market intermediaries along the chain, each of which is larger and more specialized. Local intermediaries generally buy harvested, unprocessed coffee beans directly from farmers and resell them to larger urban-based wholesalers. These intermediaries, in turn, sell the beans to specialized coffee exporters, who market them on a large scale to processing firms in the USA and Europe. A smaller sub-chain involves cooperatives, such as Oro Verde, which purchase raw coffee beans from their members and sell them directly to foreign processors.

The more complex domestic market chain includes many of the same farmers, local intermediaries, cooperatives, and urban wholesalers. But in contrast to the export chain, it also includes processors, retail outlets (local markets, general stores, supermarkets, and restaurants), and Peruvian consumers. Merchants in local markets participate in the local market chain, buying coffee from small farmers and marketing it to small-scale local processors. There are two types of coffee processors in the domestic market chain. Large-scale industrial processors are located outside the region (mainly in Lima or Chiclayo) and use specialized facilities for drying, toasting,

milling, and bagging coffee. They generally sell their coffee under brand names in urban grocery stores, supermarkets, and up-scale restaurants. In contrast, local informal processors process small amounts of coffee (for example 10 kg / day) using rudimentary methods and facilities and, until recently, they have sold their coffee in local markets in plain paper or plastic bags. In this case study, we focus on the domestic market chain for coffee produced in San Martin.

Market chain actors and service providers

Market chain actors. The main types of participant in the domestic coffee market chain for coffee grown in San Martin are:

- *Small coffee producers.* These generally produce coffee with simple cultural practices and few purchased inputs on small parcels of forested land. Most of these farmers have 2 – 3 hectares of coffee and grow varieties of the *Coffea Arabica* species.⁵
- *Local intermediaries.* These small-scale merchants purchase coffee from the producers and sell it to urban wholesalers.
- *Urban wholesalers.* These large-scale merchants (who also handle other products, such as rice, grains and pulses) purchase coffee from local intermediaries and sell it to processors and exporters.
- *Cooperatives.* The main cooperative is Oro Verde. Its main line of business is to export coffee, but it also processes a small amount for the domestic market and sells some to local formal processors. Another, much smaller, cooperative is Cristo Rey Coffee Cooperative.
- *Market vendors.* These small-scale merchants purchase and sell a wide variety of agricultural products in traditional urban markets; they purchase small amounts of coffee from producers in the market, and sell it to informal processors.
- *Industrial processors.* These large-scale food processors are based in or around large urban areas outside the region (such as Lima and Chiclayo) and process large volumes of coffee and other food products that are sold under brand names in general stores and super markets.
- *Small-scale processors.* These small-scale local operators generally process coffee as a sideline, using simple methods and multi-purpose implements.
- *Supermarkets.* Until recently these were only in Lima, but they are now increasingly common in cities throughout Peru.

⁵ These varieties are generally considered to produce better quality coffee than varieties of the *Coffea canephora (robusta)* species.

- *General stores.* These are common throughout Peru, but are declining in importance relative to supermarkets.
- *Restaurants.* The boom in Peruvian cuisine has led to increased demand for high-quality coffee served in restaurants in Peru's major cities.
- *Consumers.* Peruvians, on average, consume very little coffee, especially in rural areas. While most consumers prefer instant coffee, demand for quality coffee is on the rise, particularly in urban areas.

Service providers. Very little attention has been paid to development of the domestic coffee industry. One exception is the work of Practical Action, which has supported development of the small-farm coffee sector in the region over the last 15 years. This NGO, which has an office in Tarapoto, has implemented a series of projects aimed at improving the production and post-harvest practices of small coffee farmers. Several other agricultural service providers operate in the region, but few have worked with coffee. Coffee growers get their technical information mainly from private firms or cooperatives that export coffee. The Economic Development Office of the Regional Government of San Martin established a Technical Roundtable for Coffee, mainly coordinates support for the export coffee sector and is not concerned with coffee production or processing for the domestic market.

Norms and customs

Historically, there has been little communication among members of the coffee market chain. Producers have known little about the processing and use of their output, and processors have known little about coffee production methods. Within the market chain, the main points of contact for small farmers have been local intermediaries, cooperatives, or market vendors. They had virtually no contact with processors or other "downstream" value chain actors (such as supermarkets, food stores, restaurants or consumers of quality coffee) or with authorities in the Regional Government or other agencies charged with promoting economic development. A 2007 market survey indicated that most small coffee producers in the region had no idea that San Martin produced some of the highest quality coffee in the world. The level of trust among domestic market chain actors has generally been low, and cash sales have predominated. One difficulty faced by farmer cooperatives has been the lack of operating capital to finance cash sales, and subsequent delays in paying farmers for their produce.

Relations between coffee growers and NGOs who managed coffee-development projects have frequently been more positive than relations between growers and governmental service providers. Nevertheless, the intended beneficiaries often became dependent upon the NGOs for

fulfilling key roles in leadership and enterprise management. For example, the Catholic charitable organization Caritas (www.caritas.org) supported the establishment of the Cristo Rey Producers' Cooperative in 2006 and supported it by processing coffee and marketing it in Lima. However, since CARITAS did the processing in Lima, when project support ended, there was no way the coop's members in Tarapoto could continue the business.

Implementation of the PMCA exercise

Participants in the PMCA exercise

Several development organizations participated in the PMCA exercise in order to learn a new participatory method for promoting local agro-business and market-chain development. Some organizations also wished to support and work with women's groups. On the other hand, a few R&D organizations (such as INIA and IIAP) had little interest in participating actively in the exercise, because their mandates do not include coffee production and processing. Coffee producers' main interest in the PMCA was to increase their coffee sales and household incomes. Increased sales were also seen as necessary to strengthen the Cristo Rey Cooperative, which had been in decline since the end of the CARITAS project. When the PMCA exercise began, most of the cooperative's members sold their coffee individually, rather than through the cooperative. Women affiliated with a Women's Association of Food Processors⁶ – Women's Association for short – participated in the PMCA in order to improve the quality of the coffee they had been processing for some time, and to market it at a higher price under a recognized brand name.

The PMCA provided an opportunity for these diverse groups to interact in pursuit of their individual interests, and work together to identify and pursue common goals. The most active participants were Practical Action and the women's group. Some members of the Cristo Rey Cooperative did not support the development of a new brand of coffee to be marketed by the women's association because they thought it would compete with their own brand of coffee – Misky Café.

Timeline and activities

Phase 1. In June 2007, Practical Action initiated the PMCA exercise in San Martin when it hired two consultants to study the marketing of coffee produced in the region and to explore the potential for developing the domestic market for quality coffee (Exhibit 11). Based on field work in the region and secondary research in Lima, the consultants prepared a detailed report that identified the key actors involved in coffee production and marketing in San Martin, analyzed the

⁶ The full title of the association is "Asociación de Mujeres Productoras y Vendedoras de Alimentos Pre-Elaborados – Tarapoto Único" (AMPVARPE-TU).

main challenges to developing the internal market for the region's coffee, and proposed a strategy for domestic market development. This study is more thorough and extensive than the informal market surveys carried out in most other PMCA exercises.

The study reached three main conclusions, which were presented at a public event in Tarapoto marking the end of Phase 1 of the PMCA exercise, in August 2007:

1. Although San Martin produces some of the world's highest-quality coffee, this fact is not widely known or appreciated in Peru or in the region; local coffee consumption is low and mainly in the form of instant coffee.
2. Expanding national consumption of the region's coffee and increasing local value added will require development of a local processing industry (toasting, grinding, packaging) that can generate a dependable supply a high-quality coffee for consumers.
3. Development of a viable local processing industry for quality coffee would require development of a local "coffee culture," in which coffee producers, processors, and consumers all recognize and value high quality.

Approximately 70 individuals participated in this event, including coffee producers, market agents, processors, and representatives of R&D organizations and governmental bodies. Three groups were formed to work on issues of product development, training, and communication / promotion.

Phase 2. From October 2007 until March 2008, seven working-group meetings were called to analyze potential business opportunities. Since an average of only about 8 individuals participated in these sessions, the three proposed working groups were merged into a single group, which was facilitated by Ivo Encomenderos, of Practical Action. Group meetings were held at different sites so that participants could learn first-hand about coffee cultivation, processing, and marketing; and also visit the facilities of Practical Action and other development organizations. Gaston Lopez, from Papa Andina, backstopped the effort, through frequent interactions with Ivo Encomenderos and periodic visits to the region. No formal training in the PMCA methodology was provided. Instead, Lopez worked directly with Encomenderos to plan and review activities and provide in-service training.

Exhibit 11. Timeline: Main activities related to the PMCA exercise with coffee, San Martin, Peru.

Dates	Activity	Participants
Phase 1: June – August 2007		
6-7/07	Diagnostic study of domestic market for coffee (Lozano & Garfias, 2007)	Consultants hired by Practical Action
8/07	Public event at end of Phase 1	Approx. 70 participants, including producers, merchants, processors, reps. of devmt. organizations and local authorities
Phase 2: October 2007 – April 2008		
10/07 – 3/08	7 Group meetings	Mainly small-scale producers, processors & devmt. organizations
2-4/08	Study of coffee market in San Martin	Consultant
	Diagnostic study of local processing	Consultant
	Analysis of potential for improving local processing	Consultant
4/08	Public event at end of Phase 2	Approx. 70 participants, incl. San Martin University, local press and TV
Phase 3: April – October, 2008		
4/08	Study tour to La Paz, Bolivia	Ivo Encomenderos (facilitator)
6-10/08	8 group meetings	
10/08	Public event, end of Phase 3	85 participants, including producers, merchants, processors, coops, reps. of devmt. organizations and local & regional authorities
Follow-up Activities		
2/09	Seminar on experiences with the PMCA in San Martin	32 participants, incl. Cesar Vallejo University (14) Coop Cristo Rey (4) ,INIA, local authorities
8/09	Workshop on local coffee brands in San Martin	13, incl. women's association, other small-scale processors, NGOs and local authorities
9/09	Establishment of "Association of coffee processors in San Martin"	Representatives of 7 small-scale local coffee processors
11/09	Seminar on participatory methods	R&D organizations and public entities in the region
11/09	Study tour to Lima and coffee-producing zone in Central Peru	7 members of the association (small-scale coffee producers and processors)
4/10	Training workshop on PMCA	33 individuals: 24 from INIA, others from local NGOs and public entities
11/10	"Salon de Café"	President of Regional Government, processors of 17 local coffee brands, restaurant & store owners, public officials, the press & 500 members of the public

During Phase 2, three studies were carried out by consultants. The first was a study of the coffee market in San Martin, based on focus groups and a consumption survey in the region's largest

towns, Tarapoto and Moyobamba. The second study was an informal survey of local coffee processors and their practices. Based on results of the first two studies, it was decided to focus on improving coffee processing in the Women's Association in Tarapoto. The third study was commissioned to support this group in developing its market plans. It was decided to develop a new brand of coffee that the women's group would register and market. Results of the group meetings and studies were presented in an April 2008 public event marking the completion of Phase 2. About 70 individuals attended this meeting, including new participants from the local university, the press, and TV.

Phase 3. The final phase of the PMCA was implemented from April – October 2008. After the public event at the end of Phase 2, Ivo Encomenderos traveled to Bolivia, where he and others from Colombia, Ecuador, and Peru met Bolivians who had worked with the PMCA and observed the results of their work. A key take-home message was the need to actually develop, during Phase 3, a new product or process that would be viable in the market place. When he returned to Peru, Encomenderos facilitated 8 working group meetings to develop a new brand of coffee. The meetings were small, with an average of five participants, mostly members of the women's group and the Cristo Rey Coffee Cooperative. The focus of the first meeting was planning activities for the phase. The second and third meetings were organized to provide members of the women's group with technical training in coffee roasting. Later meetings were dedicated to obtaining a sanitary license for a new brand of coffee, registering the brand, developing a marketing plan, and launching the new product. The women's group purchased a coffee grinder with funds from Practical Action and the Alliance.

The final PMCA event, held in Tarapoto on October 17, 2008, attracted 85 participants including market chain actors from the region, members of the press, and representatives of R&D organizations and local and regional governmental bodies. During this event, the new coffee brand – “Flor de Café” – was launched. The consultants who had carried out market studies during the PMCA exercise presented highlights of these studies and recommended marketing campaigns to promote the consumption of quality coffee in Tarapoto and Moyobamba. These campaigns should include coffee-tasting events, information about the world-class quality of San Martín's coffee, and instructions for preparing and enjoying quality coffee. It was emphasized that small farmers, businesses, cooperatives, and public officials would all need to participate and share responsibilities for developing local markets for coffee. In this event, the rector of Cesar Vallejo University announced the university's interest in incorporating PMCA training into the business administration program.

Follow-up. After formal completion of the PMCA exercise, a number of related activities have been carried out to further develop the coffee market. Practical Action's coffee project has provided funding for many of these, and small amounts of funds have also been provided by the Alliance. The main priority that emerged from the discussions after the final PMCA event was establishment of an association of local coffee processors. The PMCA exercise and launching of the "*Flor de Café*" brand sparked the interest of several other individuals and groups to launch, or re-launch their own brands.

One case concerns the Cristo Rey Cooperative, which produced its own brand of coffee – *Misky Café* – in 2006 and 2007 with support from CARITAS. As mentioned earlier, CARITAS arranged for processing this coffee in Lima. Consequently, when CARITAS' support ended, the cooperative had not acquired the capacity to process its own coffee. Nor had it established relations with another group that could process and market its coffee. The result was that its coffee business collapsed. Seeing the example of the Women's Association, the cooperative decided to begin local processing using simple technology (such as toasting in a copper pan over a wood fire) and re-launch its brand – *Mishki Cafe*. More recently, several other individuals and groups have also decided to begin producing and marketing toasted, ground coffee.

To support these groups, the Alliance and Practical Action organized a meeting to discuss priorities for consolidating the new coffee processing businesses and the possibility of forming an association of local coffee processors. Thirteen individuals participated in this meeting, including representatives of the women's association, other small-scale processors, NGOs and local governmental authorities. In the meeting, it became apparent that the different processors had similar problems related to the supply of quality coffee for processing, processing methods and equipment, and marketing. As a result, it was decided to form an association that would represent the group and seek solutions to problems that required collective action. As public research entities in the region were not providing adequate technical support, there was interest in training and technical assistance. Another priority was to improve the dissemination of information on the virtues of local coffee. Two strategies were proposed to stimulate interest in, and demand for, local coffee:

- Establishment of a coffee shop in Tarapoto where local coffee could be offered to the public
- Promotion of a "Coffee Tour" that would bring tourists into contact with local coffee producers and processors

In October 2009 the “Association of Small Coffee Producers in San Martin” was established with seven original members. In November, representatives of the association participated in a study tour to Lima and to Peru’s main coffee-growing region, the Chanchamayo valley. In 2010, the Alliance provided the association with a small grant (US \$6,000) to allow it to contract a local professional on a part-time basis to manage the association and support its consolidation.

In addition to these follow-up activities to promote development of the local coffee processing industry, other activities have focused on dissemination of results of the PMCA in the coffee sector and training in the PMCA methodology. In February 2009, a seminar was held at the Cesar Vallejo University in Tarapoto to share results of the PMCA in the coffee market chain with members of the university, INIA, and local authorities. In April 2010, a PMCA training course was held in Tarapoto. Organized jointly by INIA, the regional government, and the Alliance, the course was held in the auditorium of the regional government. There were 33 participants, mostly from INIA, but also including local NGOs and public agencies.

Motivated by the successful work with coffee, the World Agro-forestry Center has applied the PMCA in Tarapoto in the market chain for a native tree crop, Pijuayo (*Bactris gasipaes*).

Because the womens’ food processing group gained experience and public recognition through its participation in the coffee exercise, it played a central role in organizing a large highly successful public event – “*Salon de Café*” – in Tarapoto on November 30, 2010. This event brought the main producing and processing groups in San Martin together with leading restaurants, coffee shops, and bakeries. Government officials, including the President of the Regional Government participated, along with representatives of NGOs, other development organizations, and the general public. In total, approximately 500 people participated in the event during the day, which included speeches, audiovisual presentations on the virtues of local coffee and how it should be prepared, coffee tasting, and displays of 17 local brands of coffee. Reporters from local radio and television stations and newspapers were in attendance, and the event was well covered in the local media.

Outcomes of the exercise

Changes in knowledge, attitudes, and skills

The participatory nature of the process favored learning, attitudinal change, and the development of trust among market chain actors and agricultural service providers. Prior to working with the PMCA, coffee producers knew very little about processing, marketing, and consumption. Similarly, processors and market agents knew little about coffee cultivation. As a

result of working through the PMCA exercise, participants learned about all aspects of the chain, including production, processing, marketing, and consumption. They also learned how the various links of the market chain interact and need coordination.

The technical training provided during the PMCA exercise allowed participants to gain technical knowledge of various aspects of coffee production, processing, and marketing, including the importance of careful harvesting, roasting, milling, and packaging. The knowledge and skills gained by participants have helped them improve the quality and efficiency of both coffee cultivation and processing.

A third area of learning relates to the possibility and value of collective action. Participants from diverse background – producers, processors, and development workers – learned the value of sharing information and perspectives and of developing and pursuing a common vision for the market chain. As they worked through the PMCA, they saw, first hand, how they could work together to achieve common goals. This learning involved an important attitudinal change. Previously, coffee cultivators, processors, and market agents tended to view one another with suspicion and had little inclination to work together. As a result of their experience with the PMCA, those involved have seen the potential benefits of working with others to achieve common goals.

The opportunities for diverse actors to meet were critical both for learning and for changing attitudes. Visits to the Cristo Rey Cooperative and to farmers' fields allowed coffee processors to learn about production and harvesting issues and also to develop personal relations with producers. Similarly, visits to coffee processors and markets allowed the producers to learn more about the quality requirements of consumers.

Participation in working-group meetings and public events during the PMCA exercise allowed diverse actors to get to know one another, share the knowledge, learn to respect diverse opinions, and develop confidence in one another. These meetings also allowed development organizations to get to know producers and processors and better understand their needs and possibilities. Finally, through the PMCA exercise, small-scale coffee producers and processors learned that by working together they could develop a local coffee industry.

Commercial, technological, and institutional innovations

Commercial innovation. The most visible, direct result of the PMCA has been the creation of a new brand of coffee produced and marketed by a women's group in Tarapoto. The brand was

originally launched as “Flor de Café.” However, this brand name was not approved by the National Institute for the Defense of Competition and Protection of Intellectual Property (INDECOPI), because it had already been registered by another firm. As a result, the women’s group now markets the coffee under the brand, “DELICORM,” which the group had registered previously. DELICORM stands for “Deliciosa Comida Regional Milenaria.” This brand of coffee is now sold in the central market and in several grocery stores in Tarapoto. Launching of the DELICORM brand in the final event of the PMCA appears to have stimulated other individuals and groups to enter into artisanal coffee processing and to launch their own brands of coffee, and to improve the quality of their products. At present, at least 8 new brands of coffee are being produced and marketed locally. It is believed that the appearance of these new brands of coffee reflects and has stimulated increased consumer interest in quality coffee and increased coffee consumption in the region. A study is being carried out to determine if consumer attitudes and consumption levels have, in fact, changed.

Technical innovation. Improvements in techniques used for selecting harvested coffee and for roasting, grinding, and packaging have led to improvements in the quality of coffee available to consumers.

Institutional innovations. The PMCA stimulated development of contacts and working relations among diverse market chain actors and with development organizations. As a result, there are now more frequent and productive interactions among service providers and economic actors involved in local coffee production and marketing. New market relations have emerged, for example between the Cristo Rey production Cooperative and DELICORM. A group of small-scale producers and processors is now committed to working together to develop the domestic coffee market. An association of small-scale coffee processors has been established, with a common agenda for business development. Local development organizations are also now providing more support for developing the domestic coffee market.

Inclusion, empowerment, and wellbeing

One of the “success stories” of the PMCA in San Martin is the lead role played by a women’s group in the innovation processes, creating and marketing a new brand of coffee. Through the PMCA, DELICORM created a new line of business that contributes to its members’ incomes. However, coffee sales are small and generate only a very small part of the income of the association’s members’ incomes. This was the first time that a women’s group had entered into the coffee processing business. By playing a lead role, DELICORM has raised its profile in the region and strengthened the commitment of its members to the organization. Subsequently, DELICORM has

also participated in another PMCA exercise with Pijuayo, supported by the World Agroforestry Center. This exercise opened up additional opportunities and income potentials for members, further strengthening the organization.

Institutionalization of the PMCA

The local university has expressed interest in incorporating the PMCA into its curriculum, and INIA researchers and managers are interested in incorporating the PMCA into this national organization's applied R&D work. These organizations have held events to share results of the PMCA exercise and provide training in the methodology. However, to date neither the university nor INIA has been able to marshal the resources needed to incorporate the PMCA into their programs. Practical Action has not incorporated the PMCA into its work. One reason is perhaps that Practical Action has its own market-chain approach known as "participatory market mapping", previously known as "participatory market chain analysis" (Albu and Griffith, 2005).

Prospects for the future

The women's organization is committed to improving the volume and quality of the coffee it sells, and feels that there is substantial market potential for doing so. Members note that sales are currently constrained by the limited capacity of the oven used to toast coffee, which was designed for baking bread rather than roasting coffee. The group lacks the funds needed to purchase a specialized coffee roaster. The women's group looks to support from a development organization, such as Practical Action, to assist it with capital purchases. However, Practical Action's coffee project came to an end in late 2010, leaving the association in limbo.

The newly organized association of small coffee processors is still defining its operational rules and procedures. In 2010 it received financial and technical support from Practical Action and the Alliance. Ivo Encomenderos supported the association under a part-time contract with the Alliance, but this support ended at the end of 2010. Because crucial support for the women's group and the new processors association was withdrawn at the end of 2010, the future of these organizations is uncertain.

Conclusions and suggestions for improvement

People who participated in the PMCA exercise in San Martin learned that the following key factors influence the success of the PMCA:

- Presence of a committed and respected lead organization (Practical Action in this case)
- A capable, committed, and dynamic facilitator (Ivo Encomenderos, of Practical Action)
- Methodological backstopping and mentoring (from Gaston Lopez, of Papa Andina)

- A committed and dynamic local group that leads the innovation process (the women's processing group)

Participants feel that the PMCA has two especially valuable characteristics, which differentiate it from other development approaches. First, the PMCA has a structured process for engaging diverse market chain actors and R&D organizations in pursuing a common goal. Second, the PMCA fosters knowledge sharing and social learning ("aprendizaje mutuo") among these diverse groups. Especially important are the face-to-face meetings that allow people to get to know one another, develop personal relationships, exchange ideas, and work together.

It was difficult for people to understand and appreciate the goals and strategies of the PMCA at the beginning of the exercise. Many people "got the picture" only at the end, when the new coffee brand was launched.

Participants in this case suggest four areas for improving the PMCA:

1. Explain the approach more fully at the beginning of the process, and provide more structured training
2. Involve more people in PMCA training and provide more practical examples of PMCA implementation from other cases
3. Complement PMCA training with more technical training (in this case, on aspects of coffee processing and marketing) and include more frequent field visits to foster knowledge exchange
4. Complement the PMCA with other methodologies that address marketing and enterprise-development issues, to ensure the consolidation and sustainability of the results

Case 2. Developing and marketing a new dairy product (Oruro, Bolivia)

Context of the PMCA exercise

Several factors motivated PROINPA to select the market chain for dairy products in Oruro for application of the PMCA. These include the high incidence of poverty among the area's small herders, the importance of dairy production for these herders, the felt need for product and process innovation in the local dairy industry, the presence of a capable local organization that could facilitate the work (SEDERA), and the existence of a number of small-scale community-operated dairy processing plants that were under-utilized. Small farmers involved in dairy production and processing in the altiplano are among the poorest farmers in Bolivia. Supply-oriented dairy development projects in the region had been stymied by marketing problems. It was felt that if the processing plants' product portfolio could be diversified and high product

quality ensured, local market demand could generate substantial benefits that could accrue to small producers. Further, since similar community-based dairy plants exist in other poor areas, it was believed that success with the PMCA in Oruro could serve as a model for other highland areas.

Macro context

Oruro has traditionally been known as a mining center. During the colonial era, it was one of the world's leading silver producers and in the nineteenth century it had the world's largest tin mine. Agriculture and livestock herding have gained importance since the 1970s, as micro-irrigation projects have been developed. However, since the region's cropland and pastures are above 3,500 meters above sea level and subject to frequent frost and drought, they are close to the limits of agriculture and livestock production. Human population density is low and poverty levels are high. With more than two-thirds of its rural population considered poor, Oruro is one of the poorest regions in the country. Schooling and literacy levels are also lower here than in most other parts of the country.

The region's small farmers face severe capital constraints and high production risks. Most agricultural products are consumed on the farm where they are produced or bartered in local markets for household necessities. Only a small fraction of farm production – perhaps 20% -- enters into commercial market chains. Due to the low levels of household production and incomes and the high production risks, farmers are very careful to minimize market risks and are conservative in their production and marketing strategies. Despite these numerous challenges, Oruro's agriculture and livestock production have expanded over the last 40 years as small-scale irrigation projects have been developed. And despite the skepticism of many observers, milk production has become an important source of agricultural income in the region. Following traditional patterns, most pastureland is managed collectively, but livestock are owned individually. Most families own fewer than 15 cows. Nevertheless, these communal pastures are frequently over-grazed.

Governmental research and development agencies have not been active, but numerous international donors and NGOs have operated in the zone for years, promoting rural and agricultural development. DANIDA, for example, has supported dairy development based on small-farm production and community-managed processing plants. In recent years, the number of international development organizations, including NGOs, operating in Bolivia has declined, presenting challenges to local development organizations that have depended on international support in the past.

Market chain

Bolivia's dairy industry has developed significantly over the last 30 years, stimulated both by demand and supply factors. Urbanization and increased incomes have stimulated demand for high-quality foods, including dairy products. The supply of dairy products has also been stimulated by rural development projects that have supported irrigation projects, improvements in pastures and herds, and promoted establishment of community-managed milk processing plants. An important initiative was the "Program for Dairy Development in the Altiplano" which operated from 1996 – 2006 with support from DANIDA. When this program ended, several Bolivian professionals trained during the program formed an "Agricultural Business Service" group. Later, with FEDEPLO, this group established the SEDERA Foundation, which provides technical support for small-scale dairy development in Oruro. Recently, a few large-scale processors, most notably *PIL Andina*, have built facilities in the area, and they buy fresh milk from local herders and provide them with technical assistance.

Most small dairy herders produce fresh white cheese (*queso fresco*), which is consumed by the farm household or sold to small traders for later sale in market towns and the city of Oruro. Most herds in the region are small and productivity is low. Nevertheless, dairy products are an important source of protein in rural diets and the sale of fresh cheese is an important source of cash income for many herders during the milking season. Local production and marketing systems for dairy products have a number of biophysical and technological features that influence the nature of the dairy market chain and the potential for pro-poor market innovation:

- Fresh milk is highly perishable and requires great care to avoid spoilage during transportation and marketing.
- Oruro's milk producers are small and geographically dispersed.
- The region's transportation facilities are poor and transport costs are high.
- The quality of fodder is poor, which limits the density of cattle, adding to management and transportation costs.
- Local dairy herds are relatively unproductive, leading to relatively high costs for locally produced raw milk.
- Milk production is highly seasonal, because of seasonal cycles of temperature and rainfall, influence pasture growth.
- Milk processing requires sophisticated technology and high levels of sanitation.

In areas like Oruro, where facilities for milk transportation and storage are limited, there are strong incentives to process local milk into less perishable dairy products. However, successful

processing requires quality assurance that, in turn, requires highly trained and disciplined producers and processors. Oruro is a relatively high-cost producer of milk and dairy products that faces steep competition from dairy products that are brought in from other parts of Bolivia (Sta. Cruz) and from Argentina.

Market chain actors and service providers

Market chain actors. The main participants in the market chain for locally produced dairy products are:

- Small herders in the vicinity of Oruro, who produce milk and fresh cheese
- Community-level processing facilities established with support from development projects and lately with government support
- Small vendors in villages, towns, and the city of Oruro
- Pizzerias in Oruro, who use mozzarella cheese for their pizzas and participated in the development of a local source of this cheese
- A few up-scale natural food stores and supermarkets in Oruro
- Merchants who market cheese from other parts of the country and from Argentina
- "PIL Andina S.A." – the leading producer of milk products in Bolivia

Agricultural service providers. Bolivia's national agricultural research institute has not been active in the region and the PROINPA Foundation does not work in livestock production. Research and development services for small herders in Oruro have been provided by the Oruro Dairy Producers Federation (FEDEPLO) and by international and national NGOs who have supported dairy development through several projects over the past three decades, often supporting FEDEPLO. The SEDERA-SEA Foundation –a technically oriented development group linked to the dairy producers' federation – has managed a number of dairy development projects in the region. Its main source of funding has been the Danish aid organization, DANIDA. However, since DANIDA is now withdrawing from Bolivia, SEDERA is searching for a new business model.

Norms and customs

Small-scale dairy producers typically sell their milk and fresh cheeses to small retailers in towns and cities or directly to consumers, for cash. Farmers generally have long-term relations with these buyers. They seldom have contact with other participants in the market chain (other local buyers, retailers, or consumers). Some herders knew of SEDERA as a source of technical advice for dairy production.

Several community-based processing plants have been established over the years with support from development organizations. These plants were expected to purchase milk from their members, produce processed dairy products, and market them. Farmers were to be paid within two weeks after their milk deliveries. However, the plants have often had managerial and financial problems and have delayed payments to farmers. In several cases, the plants used up their operating capital and ceased operations. Some sold off their equipment or distributed it to members. One of these was the INPROLAC plant, which had closed down prior to initiation of the PMCA exercise. When the INPROLAC plant was built, each member made an initial contribution for its construction and for purchasing processing equipment. Initially producers who delivered milk to the plant paid little attention to quality control. In some cases, farmers watered down their milk to increase its volume and the payments received.

Legally, the INPROLAC plant is not a cooperative farmers' organization, but a private enterprise, whose owners include 22 individual farmers and a farmers' association (APROLAC) with 400 members. APROLAC was originally established to work with the Program for Dairy Development in the Altiplano, which benefited from external donor funding and technical support. Since this program ended in 2006, APROLAC has barely functioned. Few of its members currently have dairy herds, and many would like to close the INPROLAC plant, sell the equipment, and distribute the proceeds.

INPROLAC's governing committee and director rotate annually. The organization's complex ownership and management structures have hampered decision-making, management, and operations. As a result, INPROLAC has had a series of management problems. Members have lost confidence in management and their commitment to the organization has declined.

Implementation of the PMCA exercise

Participants in the PMCA exercise

The main groups of participants involved in the PMCA exercise were small dairy herders and their organizations (APPLA and INPROLAC), SEDERA, and the PROINPA Foundation. Owners of pizzerias in Oruro participated in the product development phase for mozzarella cheese. Small farmers were motivated to participate in the PMCA exercise to secure a more dependable market and better prices for their milk and processed products. Initially, herders affiliated with the farmer organization APPLA participated in the PMCA exercise. However, midway through the exercise, PIL Andina offered to purchase all the milk produced by this group and APPLA withdrew from the PMCA exercise. SEDERA identified another group of producers to continue the exercise – those affiliated with INPROLAC. These farmers wanted to revitalize a community-based processing

plant, which had ceased operations in 2006, and to diversify their processing to include new dairy products. SEDERA participated in the exercise in order to learn the PMCA methodology, to strengthen its role as a provider of technical services to small milk producers, and to expand its role in marketing dairy products. PROINPA was interested in working with the PMCA in Oruro and Northern Potosi to strengthen its methodological capacity with this participatory method and to support important poverty-reduction efforts in the Bolivian altiplano. The owners of local pizzerias participated in the PMCA exercise to learn about the production and use of mozzarella cheese, which is a key ingredient in pizza. They were also interested in having a local source of this cheese, which was currently being brought in from Santa Cruz and Argentina.

Timeline and activities

Phase 1. The first phase of the PMCA exercise was implemented from June – October, 2007 (Exhibit 12). The first main activity was a PMCA training event held in August. A single set of training events was organized for participants from both Oruro (the dairy processing case) and Northern Potosi (the native potato case).⁷ Training was provided by two professionals from Papa Andina and four from PROINPA.⁸ In the first training event, there were five trainees from CAD, 3 from SEDERA, and four from CIP-Altagro. The next main activity was an informal market survey of market chains for dairy products carried out by CAD and SEDERA, with support from PROINPA.

Exhibit 12. Timeline: Main activities related to the PMCA exercise with dairy products, Oruro, Bolivia.

Dates	Activity	Participants
Phase 1: June – October 2007		
8-/07	First PMCA training event	Trainers: Papa Andina and PROINPA. Trainees: from CAD (5), SEDERA (3) and CIP – Altagro (4)
8-9/07	Identification of key market chain actors, informal market survey	Organized by CAD and SEDERA with the support from PROINPA
10/07	Second PMCA training event	Trainers: Papa Andina and PROINPA. Trainees: CAD (4), SEDERA (3) and CIP – Altagro (3).
10/07	Public event at end of Phase 1	SEDERA organized event. 14 participants, incl. 7 small milk producers, 2 restaurants, 1 baker, & 3 R&D professionals
Phase 2: November 2007 – June 2008		
11/07 – 1/08	2 group meetings	10 participants, incl. 6 small producers, 1 restaurant, PROINPA (2) & SEDERA (1)

⁷ Professionals from the CIP-Altagro Project (<http://inrm.cip.cgiar.org/altagro>) – which works to improve productivity, preserve biodiversity, and enhance small farmer welfare in the altiplano of southern Peru and northern Bolivia – also participated in the training to learn about the PMCA, support SEDERA.

⁸ Gaston Lopez and Claudio Velasco were the trainers from Papa Andina; Rolando Oros, Félix Rodríguez, Pablo Moya, and Paola Flores were the trainers from PROINPA.

1/08	2-day training course in preparation of mozzarella cheese	2 trainers / experts in cheese production from Argentina. 11 trainees: 3 small producers, 8 from restaurants & bakeries
4-5/08	Preparation of business plans	1 small farmer, 2 from SEDERA
6/08	Third PMCA training event	Trainers: Papa Andina and PROINPA. Trainees: CAD (2), SEDERA (2) & CIP – Altagro (1)
6/08	Public event at end of Phase 2	SEDERA organized event. 20 participants, incl. small milk producers from APPLA & INPROLAC, & reps. from FEDEPLO, CIP-Altagro, & PROINPA
Phase 3: August 2008 – April 2009		
8/08	First meeting of SEDERA & INPROLAC	2 members of INPROLAC, professionals of SEDERA
9/08	Applied research and training for mozzarella cheese production	Food technician, SEDERA professionals, members of INPROLAC, and restaurant owners
10-11 / 08	Meetings of INPROLAC, SEDERA & potential buyers	SEDERA (1), INROLAC (1), potential buyers (3)
4/09	Public event, end of Phase 3	SEDERA organized event. 30 participants incl. small farmers from APPLA & INPROLAC, & reps. from FEDEPLO, restaurants, R&D orgs. University of Oruro, radio stations & a newspaper
Follow-up Activities		
8/09	Public event at the University of Oruro to share the PMCA experience, achievements & challenges	Organized by SEDERA, CIP – Altagro. FEDEPLO and PROINPA. Participants: university officials, milk producers' organizations (3), officials from 3 municipal governments, 2 restaurants, students, members of the public, media
5/10	Establishment of store, "Vaquita Andina"	SEDERA manages the store, which sells products with the Vaquita Andina label, of FEDEPLO
2010	Contracting of a sales person	A SEDERA employee
2010	Launching of diploma program in Participatory Methods	University of Oruro, CIP, CIAT, SEDERA, PROINPA, Andean Change Alliance

The information gathered through informal survey activities and actor mapping was analyzed and shared with participants at the public event at the end of Phase 1. In October, the second PMCA training event was organized, with training again provided by professionals from Papa Andina and PROINPA and trainees from CAD (4), SEDERA (3), and CIP-Altagro (3). Immediately after this training event, SEDERA and PROINPA organized a public event in Oruro to mark the end of Phase 1. There were 14 participants, including small milk producers, two restaurant owners, a baker and two R&D professionals. The small number of participants reflects the limited development of the local dairy market chain and the lack of interest among public officials in promoting the chain's development.

Phase 2. Phase 2 was implemented from November 2007 – June 2008. Group meetings were held in November 2007 and January 2008 to plan activities and assess option for diversifying dairy

processing. It was decided to focus the PMCA on preparation of mozzarella cheese, which pizzerias in Oruro were currently purchasing from Santa Cruz and importing from Argentina. In January 2008, a two-day training course was held for preparation of mozzarella cheese. Two Argentine experts in cheese making were brought to provide the training. Three small farmers participated in the training along with professionals from SEDERA and eight owners and employees of restaurants and bakeries in Oruro. In April – May 2008, 2 professionals from SEDERA and one farmer representative met to develop a business plan for producing and marketing mozzarella cheese. In June, the third PMCA training event was held, with two trainees each from CAD, two from SEDERA and one from the Altagro project. After the training course, SEDERA organized a public event to close Phase 2 of the PMCA exercise. The event's 27 participants included small farmers, owners of restaurant and bakeries, researchers and development organizations. Officials from local and regional government offices were invited but did not attend.

During Phase 2 of the PMCA exercise, the industrial processor PiAndina offered to purchase all the milk produced by APPLA's members and, as a result, APPLA withdrew from the PMCA exercise. SEDERA identified another group that was interested in diversifying its cheese production and marketing – INPROLAC. This group operated a cheese plant in the area known as *Q'asa Wasa*, from 2004 - 2006, with support from the Dairy Development Program, when it had a contract to provide dairy products for a public school lunch program. At that time, the plant received approximately 500 liters of milk daily, and produced dairy products seven days a week. Production ceased in 2006 due to management and financial problems.

Phase 3. SEDERA implemented Phase 3 of the PMCA with INPROLAC from August – April 2009. In August, SEDERA met with members of INPROLAC to review progress with the PMCA and to plan the next steps. In this meeting it was decided that INPROLAC would test mozzarella cheese production at its processing plant and that SEDERA would take responsibility for managing the plant and marketing the cheese produced.

In September 2008, trials were carried out to produce mozzarella cheese in the Kasa Huasa plant. Whereas, members of SEDERA and INPROLAC had learned the basics of mozzarella production during the short course in January, considerable adaptive research was needed to apply these principles in Oruro. The coagulant brought from Argentina by the trainers was not available in Oruro, and applied researchers needed to identify a suitable locally available coagulant. Furthermore, since climatic and atmospheric conditions in Oruro are radically different from those in Argentine cheese-producing zones, the temperatures and times specified in the

Argentine protocol for preparing mozzarella cheese had to be modified and adapted to local production conditions. A food technician from the University of Oruro, professionals from SEDERA, members of INPROLAC, and a few pizzeria owners were involved in these trials and in testing the taste, color, and viscosity of the cheeses produced and their yield in the preparation of pizzas. By the end of the month, it was decided that an adequate protocol had been developed for preparing mozzarella cheese in Oruro. In October and November 2008, SEDERA organized a series of meetings with members of INPROLAC and potential buyers of mozzarella cheese – two pizzerias and FEDEPLO's distributor of dairy products, "Vaquita Andina." Potential buyers found the mozzarella cheese produced by INPROLAC to be of good quality but too expensive to compete with the cheese produced in Santa Cruz that they were currently buying.

The new brand of mozzarella cheese, produced by INPROLAC and marketed under the Vaquita Andina label was officially launched at the final public event of the PMCA organized by SEDERA in Oruro in April 2009. There were 30 participants, including small dairy producers, research and development organizations, restaurant owners, the local university, two radio stations and a local newspaper.

Follow-up. After the formal close of the PMCA exercise, SEDERA has continued to work with INPROLAC in cheese production and marketing. SEDERA manages the Kasa Huasa plant, picks up milk from farmers and delivers it to the plant, and markets the cheese produced under the Vaquita Andina label. Most of the cheese is distributed to food stores, including one supermarket, in Oruro. Part of it is marketed in a small retail outlet operated by SEDERA. In August 2009, SEDERA, Altagro, and PROINPA organized a public event at the University of Oruro, to share experiences, achievements, and challenges of the PMCA exercise. Participants included officials and students from the university; representatives from APPLA, INPROLAC, and FEDEPLO; municipal governments; restaurants; and members of the public and the local media.

Outcomes of the exercise

Changes in knowledge, attitudes, and skills

Learning and change processes at the producer end of the market chain were somewhat disrupted by the exit of APPLA and the entry of INPROLAC at the end of Phase 2. SEDERA and PROINPA learned from this development the importance of market alternatives: An experimental initiative to produce a new type of cheese for local consumption could not compete with an offer from a large company to purchase the entire milk supply of a producers association. During the PMCA exercise, SEDERA technicians, participating milk producers, and pizzerias also gained valuable knowledge and skills in the preparation of quality cheese, in particular mozzarella.

Professionals in SEDERA feel that one of the most important lessons of the experience is the need to establish and maintain high quality standards throughout the market chain. They also learned the importance of beginning innovation processes by identifying market demands before focusing on production possibilities or technology supplies. Furthermore, participants learned the importance of engaging all relevant economic actors and service providers in innovation processes. Involvement of potential end users helped producers better understand market requirements.

Commercial, technological, and institutional innovations

As a result of the PMCA exercise, a locally produced mozzarella cheese has been introduced into the market in Oruro, under the *Vaquita Andina* brand – the brand of the departmental federation of dairy producers. This new cheese is now being sold in the Vaquita Andina store, in a few up-scale grocery stores, and in one new supermarket in Oruro. Stimulated by the work with mozzarella cheese, INPROLAC has also improved the quality of its other cheeses, including its cheese with herbs (*queso carnavalero*). The original business plan called for selling mozzarella cheese to pizzerias in Oruro. The pizzerias traditionally use a mix of two different brands of mozzarella cheese for their pizzas: the Sancor brand from Argentina and the San Javier brand from Santa Cruz. Sancor is of higher quality than San Javier, in terms of taste, texture, and yield in pizza preparation, but it costs twice as much.

The expectation was that locally produced mozzarella cheese could replace the low-quality mozzarella from Santa Cruz, and perhaps even replace the high-quality, but costly mozzarella from Argentina. However, this business plan has not worked out. The main reason is the high cost of locally produced mozzarella in comparison with the cost of mozzarella from Santa Cruz:

Price of Sancor brand mozzarella cheese from Argentina	Bs. 60/kg	US \$ 0.09
Price of San Javier brand mozzarella cheese from Santa Cruz	Bs. 27/kg	US\$ 0.04
Price of Vaquita Andina brand mozzarella cheese produced locally	Bs 40/kg	US\$ 0.06

Given these prices, local mozzarella is not competitive with mozzarella from Santa Cruz, and although the local cheese is of somewhat higher quality, the pizzerias in Oruro still prefer to mix Sancor and San Javier cheese instead of purchasing the local Vaquita Andina brand. While it has not been possible to sell mozzarella to the pizzerias, there is a small and growing market for this

cheese in local food stores that cater to high-income consumers, including a new supermarket and small stores that offer “natural” and “organic” produce.

Introduction of this new type of locally produced cheese has required technical innovation. The Argentine cheese specialists who came to Oruro to provide training in mozzarella preparation left a technical protocol for producing this cheese. However, it needed significant adaptation to the environmental and economic conditions of Oruro. Local applied researchers and producers worked for several weeks to identify and test alternative cultures, coagulants and other ingredients, and to adjust times and temperatures to conditions of the Bolivian altiplano. The new protocol is now successfully being applied in the INPROLAC plant. These commercial and technical innovations have been accompanied by institutional innovation as well. SEDERA has taken on the responsibility for managing the INPROLAC plant, for picking up raw milk from producers, and for marketing the cheese produced.

Inclusion, empowerment, and wellbeing

Restarting the INPROLAC plant, improving product quality, and marketing mozzarella cheese has allowed a few farmers to participate in a new market for their dairy products. But the effects have been limited by the very small scale of the market and the small number of farmers who supply it. Inclusion and empowerment have also been limited by the continuing strong role played by SEDERA. There has been limited capacity development at the level of local farmers and their organizations. The PMCA exercise has generated very small improvements in income to date, due to the small scale of production of the new cheese and the limited number of people involved in cheese production and sales. At the time of the fieldwork (August 2010) only four producers were selling milk to the INPROLAC plant three days a week. On average, they sell 30 l per day or 90 liters per week. Since the plant pays around Bs. 2.4 / liter, the households selling milk to the plant are now receiving only Bs. 216 per week, or approximately US \$ 30. The plant is processing only 120 liters of raw milk each day or 360 liters per week. Since it takes about 10 liters of milk for each kilogram of mozzarella cheese, the plant is producing only about 36 kg of mozzarella per week. If this is sold for Bs. 40 per kg, the plant generates a gross revenue of Bs. 1,440, or US \$ 200 per week. In comparison, in 2005, the plant processed 500 liters of raw milk each day and operated 7 days a week.

Institutionalization of the PMCA

SEDERA has incorporated elements of the PMCA into its work. However, aside from the case reported here, it has not implemented a complete PMCA exercise. Doing so would require resources that it has not been able to finance through other projects. The Technical University of

Oruro is incorporating the PMCA into its curriculum, within a diploma program in “Participatory Methods for Technological Innovation and Local Development.” This effort is supported by SEDERA, PROINPA, Altagro, CIP, CIAT, and the Alliance.

Prospects for the future

The potential future benefits of the PMCA exercise are closely linked to the fortunes of local organizations, primarily SEDERA and INPROLAC. SEDERA plays a key role, not only in supporting INPROLAC, but in managing the dairy processing plant and marketing activities. INPROLAC is a weak organization. Of the 22 individual members, only 15 have dairy cows, and only 4 are currently selling milk to the plant. As a result, few of the individual members have a strong commitment to the operation of the plant. Many members would like to close the plant and sell the facilities and equipment. Many of those involved feel that the prospects for the INPROLAC plant are linked to continued external support for financing – for purchasing new equipment and financing operations – and for marketing. However, continued external support may be difficult to obtain, because donors are reducing their development activities in Bolivia.

Aside from the issue of external support, there may also be more fundamental economic issues. Given the low levels of productivity of local dairy herds, it seems unlikely that locally produced dairy products will be able to compete with lower-cost sources of supply from Santa Cruz and other areas. In light of these cost differences, the best strategy for local dairy farmers and processors might be seek to develop niche markets for high-quality locally produced goods. Such markets are of two types: the market for natural foods that caters to a high-income clientele, and the much larger market for ingredients in government-run school lunch programs.

Conclusions and suggestions for improvement

People involved in the PMCA exercise in Oruro report learning five main lessons:

1. A key success factor for the PMCA is the commitment of the facilitating organization (in this case SEDERA) to development of the market chain.
2. One challenge to progress in this case has been the harsh agro-ecological environment, which makes it difficult for the local dairy industry to compete with alternative sources of dairy products produced in more favorable environments.
3. Another important challenge has been the weakness of farmer organizations in the dairy sector, which makes it difficult to introduce an innovation that requires collective action among producers.

4. It has been easier to overcome the technological challenges to producing a new product that meets local market requirements than to establish a viable market niche for this product.
5. It is difficult to actively involve busy market chain actors (for example, restaurant owners) throughout the PMCA exercise, but it is important to involve them, as their interests and views crucially influence the success of the innovation process.

Participants offer three main suggestions for improving future PMCA applications. First, improve institutional analysis at the beginning of the PMCA, to ensure that local partners will be able to play the needed roles. Second, improve economic and market analysis to ensure that the PMCA exercise has the potential of generating significant economic benefits. Third, implement the PMCA in the context of larger and longer-term interventions that include components for strengthening the technical, managerial, and marketing capacity of local organizations, and providing capital for necessary investments and operations.

Case 3. Conserving and marketing native potatoes (Northern Potosi, Bolivia)

Context of the PMCA exercise

The Center for Development Support (CAD), a local NGO based in Llallagua, is committed to supporting the area's rural development and the conservation of local biodiversity and culture, and has a good reputation for its work in these areas. CAD had tried to help local farmers' organizations sell their native potatoes in urban markets, but had run into problems related to uneven product quality and delayed payment to farmers from supermarkets. For this reason, in 2006, CAD asked PROINPA for help in market innovation and development. PROINPA was eager to support CAD's work to develop the market chain for native potatoes because of the high levels of rural poverty in Northern Potosi, the importance of native potatoes to rural household economy, the importance of preserving the native potatoes grown in the region, and CAD's positive record of good work.

Macro context

Northern Potosi is one of the poorest regions of Bolivia, due to its high elevation, low average temperatures, aridity and uncertain rainfall dry, limited transportation and market access, especially during the rainy season. Its economy has traditionally revolved around mining, which has had cyclical fortunes over the years. The two largest towns, Llallagua and Huanuni, house workers for nearby mines and serve as regional commercial centers. Fully 85% of the region's population is concentrated in such towns. Rural people keep small herds of livestock and grow a few hardy crops mainly for home consumption. Population density is low and most rural people

are poor. According to official statistics, 80% of the population of Northern Potosi live in conditions of poverty and 70% live in extreme poverty. Many men migrate seasonally to work on farms at lower elevations, in Bolivia's inter-Andean valleys and in the eastern lowlands. Others work in the mines. When mineral prices are high, as they are at present, the rural population declines as men, and in some cases entire households, migrate to work in the mines. Government agencies tasked with promoting development and poverty reduction in the region work mainly in towns and cities where the bulk of the region's population resides. Over the years, international donors have supported local rural development efforts. The European Union and the Italian aid agency have supported CAD in its efforts to promote rural development.

The market chain for native potatoes

Native potatoes (landraces) have been grown in Northern Potosi for millennia as a staple food of the highland rural population. Most native potatoes are cultivated on small farms at high elevations, above 3,500 meters above sea level, and are consumed by the families that produce them. Production of native potatoes fluctuates significantly from year to year, in response to fluctuations in temperature and rainfall. In good years, many farmers have a surplus above consumption needs, which they sell in local village markets. In poor years, farmers typically have no market surplus, and instead keep all the potatoes they produce, for household consumption and next year's seed supply.

The market chain for native potatoes is short. Instead of passing through a number of intermediaries, such as wholesalers or processors, most native potatoes grown in Northern Potosi are consumed on the farms where they are produced. The few potatoes that are sold pass directly from producers to consumers via barter or cash sales, or from farmers to local merchants and then to local consumers in nearby villages and towns.

There is great genetic diversity within the potato crop in Northern Potosi. Small farmers maintain hundreds of cultivars of native potatoes. However, only a few of these are important in the market economy, and cultivation of other varieties is declining. One of the concerns of the PROINPA Foundation and other research and development organizations (both national and international) is how to ensure the conservation of Bolivia's native potatoes in the region where they were domesticated and on the farms where they have traditionally been grown. Creating opportunities for small farmers to market native potatoes is one strategy being pursued to achieve this end.

Historically, indigenous farmers have grown mixtures of native potatoes on small plots of land in remote locations. Because of uncertain rainfall and temperature, farmers find it difficult to estimate their harvests before the fact, and they traditionally make marketing decisions at harvest time or later. The bulk of the harvest is used for household consumption and seed for the next crop. A portion of the native potatoes harvested is typically converted into traditionally freeze-dried potatoes using age-old methods, in order to extend the shelf life of the harvested tubers. CAD estimates that the average annual market surplus of potatoes grown in North Potosi is only about 45 tons. In good years, farmers exchange potatoes for other commodities or sell them to consumers in local markets. In some cases, local intermediaries assemble native potatoes from farmers and sell them in regional markets. Few of the native potatoes grown in this region are shipped to large urban centers such as La Paz, Cochabamba, or Santa Cruz, because of the high transport costs and losses that would be incurred. Additionally, many urban consumers now consume “modern” potato varieties, the results of breeding programs that are served in fast food restaurants. Nevertheless, the native variety *Waych’a* is still the most popular variety consumed in Bolivia.

Industrial potato processing is limited, and the factories that do exist use high-yielding modern potato varieties that are grown in more favorable environments at lower elevations on larger farms. Virtually no native potatoes are used for industrial production of potato flour, chips, French fries or other “modern” consumer products.

Market chain actors and service providers

Market chain actors. The typical market chain for native potatoes grown in Northern Potosi includes the following market-chain actors:

- Small farmers, generally in remote locations
- Local buyers, who acquire potatoes from farmers on their farms or in local markets and later sell them to retailers or consumers in open-air markets
- Small food vendors in villages and towns

Service providers. The PROINPA Foundation has worked in the region for several years, with particular interest in documenting and conserving the biological diversity of the region’s native potatoes. CAD, established in 1998 as a NGO by professionals affiliated with the Peasant Federation of North Potosi, works to foster sustainable rural development. CAD has partnered with a number of local, national, and international development organizations including the European Union and the Italian aid agency. CAD presently works in five areas: food security,

natural resources and the environment, health, human resource development, and organizational development. CAD places particular emphasis on strengthening peasant organizations. As a reflection of this philosophy, CAD has aided in the establishment of several local peasant associations, and more recently it has helped establish a network of local peasant associations, known as the Network of Organic Producers of Native Andean Products (PROPANA Network). One reason for establishing the PROPANA network was to bring together several small local peasant associations in order to assemble a significant market surplus of Andean products to supply urban markets. A farmers' organization, Cámara de Desarrollo Agropecuario y Forestal de Potosí (CADAFOP) also supports peasant associations.

Norms and customs

In Northern Potosi, agricultural land is often held communally, but individual households cultivate the land and market the outputs. Agricultural products are generally sold on a cash basis. Selling on consignment is seldom practiced because levels of trust are low and farmers often sell when they have pressing needs for cash. Farmers generally have little faith in government officials and agencies, but R&D organizations, such as PROINPA and CAD have generally good reputations.

In 2006, just prior to the beginning of the PMCA exercise, the Ketal supermarket in La Paz contacted CAD to see if they could provide 15 tons of potatoes for the supermarket. Ketal requested that the potatoes be washed and said they would pay for the potatoes when they were sold. At the time of the request, CAD could only obtain 4.5 tons, which were washed and sent to the supermarket. However, there were a number of problems with this "sale." Producers were leery of sending their potatoes to an unknown merchant without receiving cash payment in advance. Several native potato varieties were mixed together in the shipment, and consumers did not like this. There were also spoilage problems. As a result, not all the potatoes could be sold, the producers were paid only for a portion of the potatoes they had delivered, and the experience confirmed farmers' traditional suspicion of market agents.

Government bodies have not been prominent actors in promoting rural development in the area. The few agricultural services available have been provided by local NGOs supported by international development agencies. These have focused mainly on production issues, rather than market-chain development.

Implementation of the PMCA exercise

Participants in the PMCA exercise

The main groups involved in the PMCA exercise were PROINPA, CAD, peasant associations, and food retail outlets. CAD was eager to participate in the exercise to learn about the PMCA methodology, improve its marketing work, and strengthen its role as a rural service provider. PROINPA was motivated to participate in this exercise, in order to expand its capacity with the PMCA, contribute to the conservation of the region's biodiversity, and support an important poverty-reduction effort in the Bolivian altiplano. Peasant organizations participated primarily to strengthen their own role as market agents for their members. The retail outlets, which included supermarkets, hotels, and a general store in a mining town, were interested in exploring the market potential for native potatoes, which was a new product for them.

Timeline and activities

Phase 1. Phase 1 was implemented from May– October, 2007 (Exhibit 13). The first main activity, in May, was a seminar on the PMCA delivered by professionals familiar with the methodology from PROINPA and Papa Andina. The entire technical staff of CAD participated. After the seminar, CAD and PROINPA developed an initial plan for implementing the PMCA. In June and July, CAD identified and interviewed agricultural service providers with a stake in the native potato sector (for example, development offices in municipal governments, NGOs, universities, local civic authorities) and potential buyers of native potatoes (supermarkets in La Paz and Cochabamba, tourist hotels, and food stores specialized in ecological products). In August the first formal training in the PMCA was organized by PROINPA and Papa Andina, for participants from both Oruro (the dairy processing case) and Northern Potosi (the native potato case). There were 5 trainees from CAD, 3 from SEDERA, and 4 from the CIP-Altagro project.

Exhibit 13. Timeline: Main activities related to the PMCA with native potatoes, North Potosi, Bolivia.

<i>Dates</i>	<i>Activity</i>	<i>Participants</i>
Phase 1: May – October 2007		
5/07	Seminar on PMCA	Trainers: Papa Andina and PROINPA. Trainees: all technical staff of CAD
5/07	Initial planning of activities for PMCA	CAD with support from PROINPA
6-7/07	Identification of key market chain actors and informal market survey: visit to supermarkets, hotels, food stores, processors, municipal governments, university	CAD with support from PROINPA
8/07	First PMCA training	Trainers: Papa Andina and PROINPA. Trainees: from CAD (5), SEDERA (3) and CIP – Altagro (4)
8/07	Informal organizational assessment: producers associations	CAD with support of PROINPA
10/07	Second PMCA training event	Trainers: Papa Andina and PROINPA. Trainees: CAD (4), SEDERA (3) and CIP – Altagro (3).
10/07	Public event at end of Phase 1	101 participants, including small farmers, agricultural support organizations, municipal governments, market agents (mainly retailers), & processors
Phase 2: November 2007 – July 2008		
1/08	Training in informal surveys	Trainers: Papa Andina. Trainees: CAD
1/08	Planning activities, Phase 2	CAD & producers' associations
2-7/08	7 group meetings	Ave. seven participants incl. reps. of PROPANA, CAD, PROINPA, & potential buyers in La Paz, Cochabamba, Huanuni, & Salar de Uyuni
3-4/08	Estimation of production costs	CAD & producers' associations
3/08	Development of statutes and rules for PROPANA network and associations	CAD, PROINPA, associations
3/08	Contact with a governmental office (CADAFOF) to solicit support for the PROPANA Network	CAD, PROPANA Network, CADAFOF
3/08	Training in ecological production	Trainers: CAD, AOPEB. Trainees: members of farmer associations
4/08	Design of promotional materials for the new product and PRONAPA	CAD, PROINPA, PROPANA Network
5-6/08	First preparation of "Miskipapa" & delivery to hotels and mine store	PROPANA Network & CAD

Exhibit 13. Timeline: Main activities related to the PMCA with native potatoes, North Potosi, Bolivia (cont.).

<i>Dates</i>	<i>Activity</i>	<i>Participants</i>
6/08	Signing of agreement whereby CADAPOP (agency within departmental government of Potosi) would provide PROPANA Network with credit, equipment, & managerial & legal support	PROPANA Network, CAD, CADAPOP
6/08	Participation in Regional Biodiversity Fair	Affiliates of PROPANA Network (sold approx. 2 tons of native potatoes)
6/08	Third PMCA training event	Trainers: Papa Andina and PROINPA. Trainees: CAD (2), SEDERA (2) & CIP – Altagro (1)
7/08	Public event at end of Phase 2	Organized by CAD, PROINPA, PROPANA Network, Municipal government of Huanuni. 26 participants in three working groups, including members of the PROPANA Network, potential buyers of Miskipapa, & service providers
Phase 3: August – October 2008		
8/08	Training in preparation of business plans	Trainers: Papa Andina. Trainees: CAD
8/08	Preparation of business plans	PROINPA, CAD, PROPANA Network
9/08	Participation in national fairs to promote Miskipapa	Representatives of PROPANA Network, accompanied by CAD
9/09	Meeting to discuss construction of a plant for processing Andean products	CAD, PROPANA Network, & officials from Llallagua government
9/08	Delivery of potatoes to 2 supermarkets, 1 mine store, & 1 hotel	CAD, PROPANA Network
10/08	First field inspection for organic certification	AOPEB
10/08	Public event, end of Phase 3	Organized by PROINPA, CAD, PROPANA Network, Municipality of Llallagua. Participants included members of farmers associations, municipal authorities, market outlets in La Paz and Huanuni.
Follow-up Activities		
09-10	Support for PROPANA Network	CAD
8/10	Public event in Llallagua to present results of PMCA and highlight role of local organizations, (“Primer encuentro de productores”)	91 participants from 15 farmer associations, R&D organizations, TV, Radio, Municipality of Llallagua and other public offices
	Presentation of project proposal to IDRC to support development of processing plant	CAD and PROPANA Network submit proposal, with support from PROINPA

The next main activity was an assessment of the organizational capacity of the peasant associations that CAD was working with. This was done by CAD with backstopping from PROINPA. In October, just prior to the final event for Phase 1, the second PMCA training event was organized. Again, training was provided by Papa Andina and PROINPA and trainees came from CAD (4), SEDERA (3), and CIP-Altagro (3). Immediately after this training event, a public event was organized in Llalagua to mark the end of Phase 1. The event attracted 100 participants, making it the largest event ever organized by CAD. Participants included representatives of peasant associations that produce native potato and oca, indigenous leaders, agricultural support groups (representatives of municipal governments, foundations, researchers, universities, and NGOs), and potential buyers of native potatoes (supermarkets, hotels, mining companies, and organic food stores). Working groups were formed for members of these different stakeholder groups to interact. At this event it was agreed that the PROPANA Network should develop a fresh potato product, with washed and selected potatoes sold in small net bags.

Phase 2. Phase 2 was implemented from November 2007 – July 2008. The first formal activity, in January 2008, was a training course in informal survey techniques, organized by Papa Andina for staff members of CAD. Then CAD and representatives of the peasant associations planned activities for Phase 2. In February and March, seven group meetings were held in different locations, involving representatives of PRONAPA, CAD, PROINPA, and different market actors. An average of seven individuals participated in these meetings. Two meetings were held in the mining center Huanuni, to discuss possible sales of native potatoes in a store run by the union. Two other meetings were held in hotels in different parts of the country to explore possible sales in these tourist destinations. Meetings were also held in the Ketal Supermarket in La Paz and in the Hipermaxi supermarket in Cochabamba. In March, CAD supported the PROPANA Network and the affiliated farmer associations in developing statutes and bylaws for the associations, establishing contacts with the government office and CADAFOF, to request support for the network and its associations, and estimation of production costs for native potatoes. In March, CAD and PROINPA organized a training course on ecological production for producers affiliated with the PROPANA network. In April and May, CAD and PROINPA designed promotional materials for the new native potato product, Miskipapa (selected, washed potatoes sold in a small net bag), and visited potential buyers in La Paz, Cochabamba, Huanuni, Llalagua, and other urban areas, to explore their interest in marketing Miskipapa. As few market chain actors participated in the small group meetings, these visits were crucial for promoting interaction between potato producers and potential buyers.

In May 2008, agreements were reached with one hotel and two supermarkets for the PROPANA Network to supply them with Miskipapa. In May and June members of the network and CAD prepared the new product, by assembling potatoes from participating farmers, washing and separating them by variety, culling out small and damaged tubers, weighing and packing them in net bags, and labeling them. Small deliveries of Miskipapa were made to a hotel and a company store in the mining town, Huanuni. In June, the associations affiliated with PROPANA participated in the Seventh Regional Biodiversity Fair, and sold approximately 2 tons of potatoes. The same month, two members of CAD participated with the third PMCA training event, along with two from SEDERA and one from the CIP-Altagro project. In July CAD, PROINPA, PROPANA and the Municipal Government of Huanuni organized the public event at the end of Phase 2 of the PMCA exercise. There were 32 participants. Most were members of producers' associations, but there were also representatives of local governments, the store in Huanuni, and the body that certifies organic agricultural production. Participants were informed of the progress made in establishing agreements to market native potatoes in supermarkets, hotels, and the mine company store. A proposal prepared by PROINPA, CAD and the PROPANA Network to install a plan in Llallagua for processing Andean agricultural products was also presented and discussed. Local authorities agreed to support this initiative. Participants also supported efforts to secure organic certification of potato crops. It was noted that work with the PMCA should be complemented with work to strengthen local farmer organizations and the PROPANA network.

Phase 3. Phase 3 of the PMCA exercise was implemented from August – October 2008. In August, Papa Andina provided training for CAD in business planning. Subsequently, CAD and PROINPA worked with representatives of PROPANA to develop business plans for a processing plant for Andean agricultural products. The Alliance supported this initiative, but did not provide funding for it. An investment project was formulated for a plant to be managed by the PROPANA network, with support from CAD. The municipal government of Llallagua expressed interest in the project. However, there were subsequent changes in personnel in the municipal government and funding for the project did not materialize.

In September, representatives of PROPANA and CAD participated in bio-fairs to promote Miskipapa, and met with officials from Llallagua to discuss the possible construction of a plant for processing Andean produce. They also delivered Miskipapa to two supermarkets, one hotel, and a mining company store. In October, the Association of Bolivian Ecological Producer Organizations (AOPEB: <http://www.aopeb.org>) inspected the first potato fields of PROPANA affiliates for organic certification. In October, the final public event at the end of the PMCA exercise was organized by the PROPANA Network, CAD, PROINPA, and the Municipality of

Llallagua. This event was attended by individuals from farmers associations, municipal authorities, and market outlets in a mining town and in La Paz. The new fresh native potato product, Miskipapa was presented along with a catalogue of native potato varieties that was prepared by the PROPANA Network, CAD, and PROINPA.

Follow-up. After the formal close of the PMCA exercise, CAD has continued to support the development and expansion of the PROPANA Network. CAD has supported development of the network's management capacity; has helped the network acquire a workspace for selecting, washing, and bagging potatoes in Llallagua; and has helped to market the potatoes. In August 2010, CAD and PROINPA organized the first "Producers' Summit" in Llallagua. There were 91 participants from 15 farmer associations as well as representatives from R&D organizations, the municipal government of Llallagua and other public offices. The meeting also attracted television and radio coverage. At this meeting, results of the PMCA were shared and priorities for strengthening farmers' organizations and developing markets for Andean projects were discussed. Public officials expressed interest in obtaining local sources of native potatoes and other Andean commodities for school breakfast programs.

Outcomes of the exercise

Changes in knowledge, attitudes, and skills

The small farmers who participated in the PMCA exercise, particularly the representatives from farmers associations, highlight the value of learning about potential new markets for their native potatoes and the requirements of supermarkets, hotels, and other market outlets. In the main PMCA events, farmers learned about the needs and interests of potential buyers of native potatoes and vice versa. Farmers also note the value of interacting with managers of businesses and learning how to talk and negotiate with them. Previously, they had not had such experiences. Farmers also report learning about the requirements for establishing a farmers association, how to estimate production costs, and principles of business management. Participating farmers report learning a number of technical aspects of preparing native potatoes for marketing (for example, varietal selection, washing, elimination of diseased and damaged tubers, packing and handling). They also learned principles and techniques of organic cultivation and conservation of native varieties. Many farmers say that participating in the PMCA helped them realize that native potatoes could serve not only for home consumption and local trading, but also provide cash income, through sales in urban markets.

Commercial, technological, and institutional innovations

A commercial innovation was piloted: a new product consisting of selected and washed fresh native potatoes sold in small net bags under the brand Miskipapa. When the PMCA exercise ended, this innovation was still in the pilot stage, but progress has been made in consolidating this innovation since then. The volume of Miskipapa sold has increased each year, from 2,784 kg in 2007 to 4,050 kg in 2008, to 7,632 kg in 2009 and 19,366 kg in 2010.

PROPANA found it difficult to acquire a place to assemble potatoes from its members and prepare them for marketing. CAD has assisted with this. We understand that CAD and PROPANA have applied to the International Development Research Centre (Canada) for funding to support development of a processing facility for native potatoes and other Andean products.

Marketing native potatoes as Miskipapa has motivated some farmers to change their post-harvest practices. Whereas they previously sold mixed varieties of harvested potatoes without sorting or cleaning them, they now select harvested tubers by variety, size, and quality; and carefully clean them to minimize spoilage during transportation, storage, and display. The marketing of native potatoes has given further impetus to the efforts of CAD and the Municipality of Llallagua to support the conservation of genetic diversity in cultivated native potatoes. Local contests are now frequently held to acknowledge and reward the farmers who possess the largest collections of native varieties. Some farmer-experimenters we interviewed said they were obtaining additional native potatoes in local markets and adding them to their collections.

Institutional innovation is required to develop a dependable supply of the quantities and qualities of potatoes demanded by hotels and supermarkets. The local producer associations have proven too small to be able to provide regular supplies of potatoes to such urban outlets. This has motivated the establishment of the PROPANA Network, with which six local associations are now affiliated. Concerning farmer organization, in 2010 the president of PROPANA left the network – indeed left agriculture – to work as a bricklayer in Llallagua. This reflects the continuing strong influence of mining in the region. The recent surge in global mineral prices has led to an expansion of mining activity in Potosi and other parts of Bolivia, which has stimulated employment and urban development, motivating many rural people to migrate to the mines and nearby towns.

In addition to the practical results at the level of producers and their associations, another useful product associated with the PMCA exercise has been a catalogue of native potato varieties grown

in Northern Potosi. Experience gained in this case has also been useful for updating and improving the PMCA trainers guide.

Inclusion, empowerment, and wellbeing

The small farmers who participated in meetings during the PMCA process and visited potential buyers in different parts of the country gained knowledge and improved their capacity to interact and negotiate with businessmen. The pilot sales that were completed generated economic benefits for the participants. In 2009, six farmers associations were affiliated with the PROPANA Network. Of the 232 members of these associations, 134 sold a total of 7,632 kg of Miskipapa via the network, or an average of 57 kg per member. CAD estimates that the net income from these sales amounted to a total of Bs. 15,137, or Bs. 114 per member. An important factor that influences the potential scale of benefits that may be generated by this initiative is the small scale of native potato production and market surplus in the region. CAD estimates that, on average, the total production of native potatoes in Northern Potosi is only about 45 tons each year. This reflects the region's marginal growing conditions, including limited rainfall, lack of irrigation, poor soils, and the high risk of drought, frost, and hail.

Institutionalization of the PMCA

This work with the PMCA has reinforced the capacity of the PROINPA Foundation to apply this participatory method and to provide training and backstopping for its use by others. CAD has incorporated elements of the PMCA into its work, and it plans to implement full-scale PMCA exercises in the future. To date, it has not done so, for lack of opportunities and resources.

Conclusions and suggestions for improvement

Many local farmers, governmental bodies, and R&D organizations, such as CAD and the PROINPA Foundation, are committed to the dual goals of: (1) conserving the genetic diversity of native potatoes grown by farmers; and (2) utilizing this resource for the benefit of poor farmers. However, it is difficult to devise a workable strategy that combines these two goals. Challenges include the region's harsh agro-ecological conditions and dispersed, small-scale production, which inflate the costs of production and marketing potatoes and also make it difficult and costly for rural people to meet and work together on a continuous basis. Dramatic fluctuations in temperature and rainfall also make it difficult for farmers to schedule cultivation and guarantee delivery of specific volumes of potatoes on specific dates. Differences in language and customs make farmers uneasy in meetings with urban business people, and make it difficult for these two groups to form relationships and work together. Negative experience with earlier attempts to market native potatoes in urban areas have made farmers as well as potential buyers reticent to

engage anew in such marketing schemes. For all these reasons, it might be wise to focus in the short term on marketing potatoes in local farmers' markets. This seems to be the trend in this case. Individuals involved in this case suggest that future applications of the PMCA should pay more attention to market and institutional analysis prior to beginning work on specific innovations, to enhance the likelihood of positive results in the short term.

Case 4. Developing new markets for yams (North Coast of Colombia)

Context of the PMCA exercise

The PBA Foundation is a non-profit organization dedicated to improving the livelihoods of the rural poor in Colombia. It pursues this mission by focusing on participatory methods for technology development, organizational strengthening, empowerment, and enterprise development. The Foundation has worked on the north coast since the 1990s, and recently has strengthened its work with producers of yams and other commodities in the Sucre, Cordoba and Bolivar departments. In 2006, the PBA Foundation launched an exercise to improve the marketing of several commodities produced by small farmers in the region. The PMCA was incorporated into this effort in order to spur market chain innovation.

Macro context

Colombia's north coast has been one of the country's "hot spots" for rural violence, and a laboratory for social and economic programs aimed at promoting market-led development, integration, and pacification. The Montes de Maria, on Colombia's north coast, is a lowland, humid, tropical region, where rural areas are dedicated mainly to extensive livestock ranching and subsistence family farming. There is a striking contrast between the vast expanses of pastureland and the concentrated areas of crops on micro parcels. Most small farmers rent land to grow food for their own consumption. The main crops grown in the area are cassava, banana, and yam – three highly perishable staple food crops.

Due to the concentration of land holdings, the region has a long history of rural poverty and peasant movements. From the late 1990s until about 2006, armed groups (first the guerilla and later paramilitary groups) began to operate in the region along with drug cartels, leading to a generalized climate of unrest and violence. As a result, many rural people fled rural areas in search of safety in towns and cities. Rural properties were abandoned and the rural economy collapsed. More recently, the national government, with support from international development agencies, has sought to pacify the region and integrate its small farm population more effectively into the country's economy.

A number of development projects have been implemented in the region over the years. Beginning in 1997, with support from the Dutch government, the “Foundation for Participatory and Sustainable Development of Small Rural Producers” (PBA Foundation) has worked with small farmers to improve their production practices. A sequence of participatory research and development approaches has been used. Initial efforts focused on technical research and training, but with time the focus shifted to organizational and enterprise development and empowerment. Community learning groups were formed, which later evolved into formally established farmer associations. Presently, the PBA Foundation is working to establish second-level organizations – networks of associations – to focus on the development of priority commodity chains, including that for yam.

Over the last decade, the national government has implemented a two-pronged strategy to address the socio-economic and political crisis in the country. This strategy includes efforts to repress armed groups and re-establish security combined with efforts to promote social and economic development in rural areas. Community organization features prominently in the development strategy. In Montes de Maria, the Presidential Agency for Social Action has established a “Program for Development and Peace” and a “Peace Laboratory.” In this context, the PBA Foundation has recently implemented a project aimed at strengthening the value chains in which small farmers participate. The PMCA was applied in this project.

Market chain

Yam is the common name for some species in the genus *Dioscorea* (family *Dioscoreaceae*). These are perennial herbaceous vines cultivated for the consumption of their starchy tubers in Africa, Asia, Latin America, the Caribbean, and Oceania. There are many cultivars of yam, some with tubers that can grow up to 2.5 meters in length and weigh up to 70 kilograms. The vegetable has a rough skin that is difficult to peel. Yams are a major staple food crop in parts of Africa and Asia, where they were domesticated 8,000 years ago. They were brought to the Caribbean region, including the north coast of Colombia, from West Africa, to provide food for African slaves. Over time, yam production has expanded considerably, but yam consumption is still associated with African culinary traditions.

On the north coast of Colombia, most yams are consumed by the farmer families who grow them or by neighboring households. A relatively small market surplus satisfies local and regional markets. Colombia also exports a small amount of yam to Venezuela and the USA. There is virtually no industrial or artisanal processing of yams in Colombia.

Yam is susceptible to fungal diseases including anthracnose, and in the late 1980s, an anthracnose epidemic devastated the crop. Since that time, production has recovered slowly up to a current level of around 270,000 ton annual production on 27,000 hectares of cropland. During this time, development projects focused on improving production techniques, such as use of disease-free planting material. Most of Colombia's yams are grown on the north coast, where they are usually cultivated in association with maize, cassava or other field crops. Yam production is highly seasonal, linked with rainfall patterns. Most yams are harvested from November – March.

Many of the small farmers who produce yam in Montes de Maria are members of producer associations, which evolved out of Local Research Groups established by the PBA Foundation and other development organizations to promote farmer participation in research and development efforts. One of the roles intended for these associations was to market farmers' products, but most farmers continue to market their yams and other produce individually.

The market chain for yams is relatively simple and short, as most yams are consumed in fresh form by local consumers. Local market intermediaries generally purchase yams at market time in farmers' fields or along the road, paying for them with cash. The yams are then re-sold to market venders in towns and the region's few cities (principally Sincelejo and Baranquilla). Traditionally, there has been very little interaction between the small farmers who produce yam and the urban retailers and consumers.

Technical features of the yam that influence its marketing include:

- Seasonality of production
- Perishability of harvested yams, which limits their storability and raises shipping costs
- Potential transmission of fungal and virus diseases through edible tubers, which raises quarantine issues in international trade.⁹

In many ways, the yam is an "orphan crop." Colombia's national research organizations have done virtually no research on the crop. Similarly, the International Center for Tropical Agriculture (CIAT), located in Cali, Colombia, does not include yam in its mandate. In fact, the main source of technical expertise on this crop is the International Institute for Tropical Agriculture (IITA) located

⁹ Transmission of fungal and virus diseases through the crop's vegetative planting material (tubers) also poses a problem for seed systems.

in Nigeria. However, due to language and other issues, there has been very limited exchange of information between IITA and farmers on the north coast of Colombia.

Market chain actors and service providers

Market chain actors. There are four main groups of participants in the market chain for yams. *Small farmers* produce yams mainly for home consumption but also for sale locally. Many of these farmers participate in producers' associations but market their produce individually. *Local intermediaries* purchase yams from farmers, transport them to regional markets in towns and cities, where they are sold to market venders. In some cases, the local market intermediaries also sell yams to exporters. *Market venders* in regional markets, such as Sincelejo and Baranquilla, purchase yams from the local intermediaries deliver them to the market, and sell them to consumers or to small venders who visit the market. A few *exporters* based in Sincelejo, Baranquilla and Carmen de Bolivar occasionally ship refrigerated containers of yams to the USA, principally for sale to immigrants from the Caribbean who reside in Miami.

Potential new market agents. In the market diagnosis phase of the PMCA, a few additional potential market chain actors were identified. These include supermarkets, which could offer selected fresh yams in their outlets in Baranquilla, Sincelejo, and other coastal cities; cosmetics factory in Bogota, which could utilize fine yam starch; and bakeries, which could use specialty flours for pastries.

Service providers. Since 1997, the PBA Foundation has worked with small farmers in applied participatory research and development focused on cassava and yam. The University of Sucre and the University of Cordoba have occasionally carried out relevant applied research projects on technical aspects of yam production and post-harvest technology. Colombia's national agricultural research institute (CORPOICA) has not prioritized work on yam, except for phytosanitary certification for yam exports.

Norms and customs

Poor farmers generally need credit during the year to purchase inputs and make household purchases. Many get credit from market intermediaries, to whom they sell their yams at harvest time. A portion of the value of the sale is discounted to repay credit, and the rest is paid in cash to the farmer. The farmer seldom has information on the price of yams in wholesale or retail markets. The intermediary transports yams to an urban market where he sells them to a trader. Farmers, intermediaries, and traders do minimal sorting, cleaning, and selection, and the quality of yams available to consumers is highly variable. Yam exporters, in contrast, are much more

careful to sort the yams by size and quality to eliminate unsuitable ones, which are considered too large, too small, damaged, or diseased. Many yam producers in the region are members of farmer associations that work with research and development organizations, such as the PBA Foundation. These groups often organize applied research, training, and development activities, but only a few of the best-organized and best-capitalized associations engage in joint farming or marketing.

Implementation of the PMCA exercise

Participants in the PMCA exercise

The main participants in the PMCA exercise have been the PBA Foundation, eight small farmer associations in the departments of Sucre and Bolivar, representatives of the Sincelejo Market, a yam exporter, and the Universities of Sucre and Cordoba. The Development and Peace Foundation, Sucre Department's Economic Development Secretariat, and the Social Action project of the office of Colombia's Presidency participated in a few project activities. By World Bank criteria, virtually all the members of the participating farmer associations are considered poor and two-thirds are extremely poor. The PBA Foundation, which has a long history of participatory work with small farmers in this region, facilitated the PMCA exercise. Over the years, the Foundation has worked intensively to promote participatory technology development, farmer empowerment, and organizational development for innovation. In recent years, the Foundation has sought to strengthen its work in market chain innovation and enterprise development, and for this reason, it was eager to gain experience with the PMCA and to incorporate this approach into its enterprise development work. Small farmer associations in the region, which have had a long relationship with the PBA Foundation, saw the PMCA as a tool for expanding the market options for their yams and for improving their earnings from this crop. Representatives of the Sincelejo Market participated in the exercise to get to know yam producers and learn about the factors influencing yam supplies. They also wanted to find ways to organize market vendors and link them more directly with producer organizations, in order to stabilize yam supplies and prices in the market. One yam exporter participated in order to gain knowledge and develop relationships that would allow him to expand and improve the quality of his yam exports. University professionals, who had been working on technical aspects of post-harvest technology and processing, participated in order to explore the practical application of these techniques in the production of yam flour and starch. Local development organizations participated in the PMCA training and in some other activities to learn about the PMCA methodology.

Timeline and activities

Phase 1. The first major activity of the PMCA exercise involved the selection of PMCA facilitators for seven commodity chains (Exhibit 14). The other market chains were for cassava, plantain, honey, fish farms, sesame, and handicrafts. These commodity chains had already been selected by the PBA Foundation and farmers associations, in a participatory priority-setting exercise. The Foundation took the lead in selecting the facilitators, with inputs from farmer representatives. In May, Gaston Lopez traveled to the north coast of Colombia to deliver the first PMCA training course. Trainees included staff members of the PBA Foundation, the commodity chain facilitators, farmer leaders, and members of development organizations that wished to participate in the PMCA exercise. There were a total of 19 trainees, which later implemented the PMCA with yams and six other market chains. The training course included a visit to one farmer association, where trainees practiced interview skills. Later in May, a workshop was organized by the PBA Foundation to identify the key stakeholders involved in the yam market chain and to map out the chain. Participants included representatives of eight farmer associations, the manager of the Sincelejo Market, and interested public and non-governmental development organizations. In September the second PMCA training course was organized. Lopez and Paola Pena, representing Papa Andina, delivered the training event to 20 participants from the PBA Foundation, farmer associations, two universities, and a local foundation. Immediately after this training event the PBA Foundation organized the public event at the end of Phase 1. There were more than 100 participants, including farmers, market agents, and representatives of local development organizations and governmental bodies. Eight commodity groups were organized to review commodity-specific results of Phase 1 (the market-chain diagnosis phase), to discuss potential areas of innovation to pursue in Phase 2, and to gauge the level of interest and commitment of each participant.

Phase 2. Phase 2 was implemented from September 2008 – January 2009. During this phase, five group meetings brought small farm leaders together with market agents from Sincelejo, development professionals from public and non-governmental organizations, and post-harvest specialists from the University of Sucre. In the first meeting, participants reviewed the results of Phase 1 and the commitments made during the final event. In later meetings, participants reviewed the results of research previously conducted at the university on yam processing, and assessed the technical and economic feasibility of yam processing in the region. Potential buyers for yam flour and starch were identified, including a cosmetics factory in Bogota. The group visited the University of Sucre to further discuss processing and view equipment needed. A farmers' association prepared a sample of yam flour, which was tested in a cosmetics factory. Costs for producing yam flour were estimated, and compared to those of flour from wheat and

other sources. The PBA Foundation and the international development organization TechnoServe,¹⁰ supported efforts to prepare business plans for three potential new enterprises: producing healthy planting material for yams; producing high-quality, selected yams for export; and processing yam flour. The PBA Foundation carried out market-chain studies for yam and seven other commodities, and prepared a publication on market chains for products produced by small farmers in the Montes de Maria. Gaston Lopez visited the region to monitor progress and make recommendations for completing the phase. In December, Lopez worked via email with members of the PBA Foundation to prepare the public event at the end of Phase 2, which was held at the end of January 2009. This event was attended by 80 participants, including a larger number of market agents and development organizations than the first public event. The event was covered in the local press.

Phase 3. This phase began with the third PMCA training event in February 2009 and ended with the final public event in May. Lopez and Pena delivered this event, which was attended by 20 individuals working on seven market chains. After the PMCA training, the main activity during this phase was to continue preparation of business plans for producing clean planting material, yams for export, and yam flour. Some of the participating farmer associations began to improve their cultivation and post-harvest practices, in order to improve the quality of yams for export and local marketing. The public event at the end of this phase attracted 90 participants, including farmers, market agents, governmental officials, development professionals, and the press. At this event business plans were presented for production and distribution of healthy planting material, production of high-quality fresh yams for export and the local market, and preparation of yam flour.

Follow-up. After the formal close of the PMCA exercise, the PBA Foundation has continued to work with the farmer associations to further develop the innovation processes initiated during the PMCA exercise. One important area of follow-up has been to promote establishment of a network of local producer associations that can perform the following functions:

- Convene producers and others to discuss important issues for the market chain
- Communicate market information to producers
- Establish quality standards for yams
- Coordinate yam planting and harvesting to moderate price fluctuations
- Engage in political and public awareness activities

¹⁰ According to its website, "TechnoServe helps entrepreneurial men and women in poor areas of the developing world to build businesses that create income, opportunity and economic growth for their families, their communities and their countries" (www.technoserve.org).

Exhibit 14. Timeline: Main PMCA activities with yams, north coast, Colombia.

Dates	Activity	Participants
<i>Phase 1: April – September 2008</i>		
4/08	Selection of PMCA facilitators	Staff members of the PBA Foundation
5/08	First PMCA training	Trainer: Papa Andina (1). Trainees: 19, from PBA Foundation, small farmer-leaders, 2 universities, and a local foundation (groups working on 7 market chains)
5/08	Workshop to identify key stakeholders involved with yam market chain and to map out the chain	Representatives of 8 farmer associations, Economic Development Secretariat of Sucre, Social Action program of the Presidency of the Colombia, Manager of Sincelejo market, members of PBA Foundation
9/08	Second PMCA training	Trainers: Papa Andina (2). Trainees: 20, from PBA Foundation, farmer-leaders, 2 universities, and a local foundation (groups working on 7 market chains)
9/08	Public event at end of Phase 1	120 participants, including small farmers, governmental agencies, NGOs, & market agents selling yams in the domestic market and abroad
<i>Phase 2: September 2008 – January 2009</i>		
9-12/08	5 yam commodity group meetings ¹	Representatives of small producers, market agents, 2 universities, local development projects, & the PBA Foundation (average 8 participants/group).
11/08	Survey of yam market chain actors, characterization of the chain	PBA Foundation
12/08	Applied research for preparation of yam flour	A farmer association, PBA Foundation, Cosmetics factory
12/08	Visit to provide technical support for PBA Foundation	Papa Andina
12/08+	Preparation of business plans for clean seed, yam for export, & yam processing for flour and starch	PBA Foundation & 3 farmer associations
1/09	Public event at end of Phase 2	Organized by PBA Foundation. 80 participants, including representatives of farmer associations, governmental agencies, NGOs, and market agents selling yams in the domestic market and abroad

Exhibit 14. Timeline: Main PMCA activities with yams, north coast, Colombia.

Dates	Activity	Participants
Phase 3: February – May 2009		
2/09	Third PMCA training	Trainers: Papa Andina (2). Trainees: 20, from PBA Foundation, farmer-leaders, 2 universities, and a local foundation (groups working on 7 market chains)
2/09+	Prep. of business plans (continued)	PBA Foundation & 3 farmer associations
5/09	Public event at end of Phase 3	Organized by PBA Foundation. 90 participants, including representatives of farmer associations, governmental agencies, NGOs, and market agents selling yams in the domestic market and abroad
Follow-up Activities		
6/09+	Pilot implementation of business plans	1 farmer association, Technoserve, PBA Foundation
6/09+	Development of a network of yam producers (second-level farmer organization)	PBA Foundation and local farmer associations
8/10	Public event to share results of the PMCA	Organized by PBA Foundation. 64 participants, including market agents from the Public Market in Sincelejo, yam exporters, and representatives of farmer organizations, local development organizations (public & private), & the press

¹The information presented here refers only to the small group meetings held for the yam market chain. Small group meetings were also organized for the other 6 commodity market chains.

Outcomes of the exercise*Changes in knowledge, attitudes, and skills*

As a result of their involvement in the PMCA exercise, farmers in participating farmer associations gained a greater appreciation for the roles and functions of the various actors involved in the domestic and international marketing of yams. Farmers involved in the applied research effort to develop yam flour learned about technical and economic aspects of this enterprise, and the requirements of potential users, particularly the cosmetics factory that was involved in the exercise. Market agents got to know a number of producers and their associations. The PMCA exercise motivated the manager of the Sincelejo Market to organize venders, who market yams as well as other commodities, to improve coordination of the flow of produce to the market, and to establish direct links between market venders and some associations. Staff members of the PBA Foundation learned to apply the PMCA and integrate elements of the approach into the

organization's enterprise development program. They also gained valuable knowledge of several of the region's market chains and their potential for development.

Commercial, technological, and institutional innovations

The main commercial innovation to result from the PMCA exercise was improvement in the quality of yams supplied by participating farmer associations to the local market. One association exported some yams to the USA, but at the time of our visit to the region, it was considered more profitable for farmers to market their yams domestically than internationally. This was due partly to strong competition from yams produced in other parts of the Caribbean; and partly to the additional costs required to select, clean, and package yams and rent refrigerated containers for exporting them to the USA. Yam producers in at least one association are contemplating the establishment of an irrigation system to produce yams in the off-season, when international prices would be higher. The prospect of exporting yams has motivated farmers to improve the quality of their planting material, in order to reduce pest and disease problems and ensure that their crops will be certified for export by ICA. This has provided more impetus for a project to produce clean seed, which is operated by a women's group within one farmer association. In the experiences to date with exporting yams, one challenge has been to assemble a sufficient quantity of yams to satisfy the amounts required by market agents in the USA. This has motivated farmers and the PBA Foundation to establish a network of yam producers who are affiliated with the local farmer associations. This second-level organization is still in process of establishment, and has not been formally registered.

Inclusion, empowerment, and wellbeing

To date, the PMCA exercise has generated few measurable income or welfare benefits for small farmers. It seems likely that improvements in the quality of yams supplied to local markets have generated benefits for producers, but the magnitude has not been measured. Farmers do report that as a result of the PMCA, they have gained confidence in their relations with professionals in development organizations and particularly with market intermediaries.

Institutionalization of the PMCA

The PBA Foundation took the opportunity of the project with the Alliance to implement the PMCA not only in the market chain for yam, but also in seven other market chains in the Montes de Maria region. Subsequently, the Foundation has incorporated elements of the PMCA into its enterprise-development work in other market chains and in other regions. It reports that it would have preferred to implement complete PMCA exercises in some cases, but was not able to do so, due to lack of funding and time. For example the market-diagnosis elements of the PMCA were

applied in a recent project funded by USAID, but the full PMCA intervention could not be implemented because, at the donor's insistence, the duration of the project was only six months.

Prospects for the future

One very positive aspect of this case is the commitment of both the PBA Foundation and local farmer associations to enterprise and market-chain development in the region. As a result, it seems likely that the commercial, technical, and institutional innovation processes sparked by the PMCA exercise will continue in the domestic market for fresh yams, bearing more substantial fruit in the future. There seems to be potential for expanding exports of quality yams to the USA, but this is not likely to become a significant market unless technical innovations (such as the proposed irrigation system) allows off-season production when international supplies are short and prices are high. More technical and economic information is needed to assess the potential development of a yam processing industry.

Conclusions and suggestions for improvement

Those involved with the PMCA exercise on the north coast of Colombia report having learned the following lessons:

1. The impacts of any one participatory method are limited. The benefits of the PMCA are likely to be greater where: previous work has been done to strengthen farmer organizations; complementary methods are used to address needs for organizational and enterprise development; and there is follow-up to consolidate and scale up innovations.
2. The most important results are not new products but new businesses and new alliances.
3. One needs to be careful not to generate expectations that cannot be met, for lack of time and resources for investment. It is probably not realistic to expect that a viable new product can be developed within a year's time.
4. Consolidating an innovation such as yam processing requires investments in plant and equipment, which in turn require a credible business planning, which is beyond the present scope of the PMCA methodology.
5. Political support is essential for the success of many innovations (for example, to obtain certification of yam exports). For this reason, it is important that appropriate political officials be invited to attend the public events at the end of each phases of the PMCA.
6. It is easier to generate interest and commitment among market chain actors and to achieve tangible outcomes when consolidated and capitalized enterprises participate in the chain. For example, in the work on the north coast of Colombia, more progress was made in the sesame market chain than in the yam chain. One reason was that large

processing firms, such as Bimbo and the National Chocolates Company, became interested in purchasing local sesame. In comparison, the firms involved in the yam chain are less well consolidated local or regional market agents and incipient exporters.

Participants offer the following two main suggestions for improving the PMCA: (1) improve methods for selecting groups and commodity chains to work with, to maximize the prospects of success; and (2) strengthen the economic analysis and business planning methods employed.

4. COMPARATIVE ANALYSIS

In this section we analyze the results of the four case studies in relation to the following objectives of the study:

1. Evaluate the fidelity of the PMCA implementation process
2. Document results of the PMCA
3. Identify key factors that influence the implementation and results of the PMCA
4. Determine the extent to which use of the PMCA has become institutionalized
5. Evaluate the validity of the PMCA theory of change
6. Identify specific contributions of participation to pro-poor innovation

Summary information for the analysis is presented in Exhibit 15, at the end of this section. In Section 5, we present our main conclusions and lessons for improving the PMCA and its future applications.

Fidelity of PMCA implementation

In each case, the main phases and steps of the PMCA methodology were implemented. However, there were some important *qualitative* differences in implementation across the cases. One of the main differences was the degree of involvement of different types of market chain actor. In most cases, the emphasis was on working with smallholders and their organizations. Relatively few business people (such as processors, and venders) were involved, and their participation was less active than that of smallholders. The main exception to this rule was the coffee processing case in San Martin, where processors and market agents were actively involved from the start. In this case, the lead organization was Practical Action, an international NGO that works across sectors with the broad mandate of “using technology to change the world.” Already before the PMCA exercise, they were convinced that processing and marketing were the keys to development of the domestic coffee sector in San Martin. In the other cases, the lead organizations’ mandates focused on improving rural welfare through work with smallholders, and working in market chain development was quite a new experience. The dairy case in Oruro falls somewhere between the two extremes, in that it involves a processing group, which is mainly composed of smallholders, rather than independent businesses people.

A second, related, difference among the cases concerns the extent to which interpersonal trust and networks were built up among diverse actors. One feature of the coffee case that distinguishes it from the others is the large extent to which networking was promoted among

diverse market chain actors, service providers, and political authorities in the regional government who were concerned with expanding the market access of regional products. The effectiveness of this networking was reflected in the success of a recent public event to promote the region's coffee, which was organized and supported by more than ten local organizations, including producers' and processors' organizations, cooperatives, NGOs, private businesses, and governmental agencies. In the other three cases, more effort has gone into strengthening farmer organizations than networking and relationship building among diverse stakeholders. The recent marketing activities of SEDERA are beginning to build useful relations with retailers, illustrating how relationship building occurs over time and can take years to mature.

In all the cases, work initially focused on a single group (smallholders in Northern Potosi and the north coast of Colombia, processing groups in Oruro and San Martin). In San Martin, networking expanded and deepened over time, during the PMCA exercise and afterward, mainly because of continued attention to this point from Practical Action and Papa Andina. In the other cases, multi-stakeholder collaboration appears to have been limited by the traditional focus of the facilitating organizations on smallholder development.

Results of the PMCA

Useful knowledge was acquired by participants in each of the cases, along with useful contacts with other market chain actors and service providers. Smallholders report gaining valuable information on the needs and priorities of consumers as well as knowledge of other market chain actors. Participating R&D organizations report gaining valuable information and perspectives on market innovation and development. In most of the cases, learning which occurred within the lead R&D organizations appears to be one of the most important results of the PMCA exercises. In particular, CAD and SEDERA, in Northern Potosi and Oruro, gained valuable experience with market-chain innovation and development, and they now approach their development activities with a more integral market-chain perspective.

The most visible commercial innovation is the new brand of coffee marketed by the women's processing group in San Martin, Peru. This brand has been in the market for 3 years, and its success appears to have motivated several other groups to launch or upgrade their own brands of coffee. The new mozzarella cheese marketed under the *Vaquita Andina* brand in Oruro is another important commercial innovation. Work with the PMCA in this case has also motivated local dairy producers to diversify the types of cheese they produce and to upgrade their quality. In Northern Potosi, farmers have marketed small quantities of *Miskipapa* for three years now. The economic impact of these sales on farmers' welfare appears to be relatively small. However, the

expanded marketing of native potatoes has also helped to increase the value of native potatoes in the eyes of both smallholders and consumers, which has contributed to efforts to conserve the biodiversity of native potatoes in the region.

The work with yams in northern Colombia has not produced a clearly defined commercial innovation to date. This illustrates the importance of focusing the PMCA on the production of a tangible, *branded* new product.

In the cases studied, commercial innovation has gone hand in hand with technical and institutional innovation. The new brand of coffee produced by the women's processing group in San Martin incorporated improved selection, roasting, grinding, and packaging. Local production of mozzarella cheese in Oruro required R&D to adapt an Argentine protocol to local environmental conditions and available coagulants. Additionally, marketing cheeses in Oruro has made it clear to SEDERA and participating smallholders that the quality and sanitary standards of their cheeses needs to be upgraded, and they have worked hard to establish and maintain high quality standards. Sale of *Miskipapa* in Potosi and improved yams in Sincelejo has required farmers to modify their post-harvest practices, to improve selection and cleaning of harvested tubers. Yam producers have also increased the density of their plantings, to reduce the size of harvested tubers.

The pursuit of commercial innovations has led groups in each case to seek changes in institutional arrangements. In San Martin, seven artisanal coffee processors have established an association to pursue common interests, representing an institutional innovation. The successful PMCA exercise and follow-up since 2008 has also motivated greater networking and relationship building among small coffee producers, processors, retailers, regional government offices, universities, and development agencies. In Oruro, in order to support high-quality dairy processing and efficient marketing, SEDERA has taken over these functions. In northern Potosi and in Sincelejo, in light of the small size of local farmers' organizations, there have been moves to establish regional networks of local groups that can perform marketing functions more efficiently and effectively. In northern Colombia, an unanticipated result has been the organization of venders within the Sincelejo market, to better coordinate the flow of produce and reduce price instability. However, it is not known to what extent this organization benefits smallholders.

The PMCA exercises have tended to strengthen farmers' organizations in each case. In San Martin, success with coffee marketing has helped consolidate the womens' processing group and raise

its visibility in public and policy circles as well as in emerging fairs and markets for organic produce. The group now plays a much more prominent role in public discussions on the local food system than previously. In the other three cases, farmers report having gained confidence in dealing with market agents, development professionals, and government officials.

Factors that influenced implementation and results

Forces at play in the macro context appear to have strongly influenced the implementation and results of the PMCA. The pro-market policies of Colombia and Peru provided a more favorable environment for use of the PMCA than did the policies of the Bolivian government, which emphasize the role of the state and “communitarian socialism.” The more favorable agro-ecological environments in which the Colombian and Peruvian exercises were carried out also appear to have favored the implementation processes and results. In the Bolivian altiplano, where poverty is more severe than in practically any other part of Latin America, there appear to be limits on the potential impact of development approaches that center on innovation in agricultural value-chains (Dorward et al., 2007).

Characteristics of the market chain also influenced PMCA implementation and results. In the cases involving coffee, and to a somewhat lesser extent dairy, it was possible to mobilize extensive external knowledge to improve processing technology. In contrast, in the cases of native potatoes and yams, the global knowledge base is more restricted. And for yam, the available scientific knowledge is more difficult to mobilize for Colombian smallholders, because the main source of information on yam is the International Institute for Tropical Agriculture in Nigeria, and very little scientific information on this crop has been translated into Spanish. Coffee and dairy products are also more amenable to processing and product differentiation than are potatoes and especially yams.

The participants involved in the different exercises also had strong influences on PMCA implementation and results. It appears that two types of “champions” are essential for success: one is the entity that initiates and facilitates the PMCA exercise; the other is a champion within the market chain itself. The mandates, priorities, traditions, and established relationships of the entity that facilitates the PMCA appear to strongly influence the course of the work. The fact that CAD, SEDERA, PROINPA, and the PBA Foundation have traditionally worked with smallholders to improve rural wellbeing helps to explain why they have tended to continue working with smallholder organizations during the PMCA, rather than working more actively with market agents. Even in the dairy case in Oruro, the main local partner was a group of processors who were also small dairy farmers. The exception has been Practical Action, whose mandate goes

beyond agricultural and livestock development and which has a tradition of market-development work.

In the coffee processing case in Peru, Ivo Encomenderos (based in Practical Action) played a key role in identifying and supporting local actors and facilitating change processes. Delicia Guivin, founder and leader of the women's processing group played a key role in developing the new brand of coffee and in networking with others to develop the local coffee sector. The local organizational and institutional environment also appears to have played a role. The relative strength of the women's coffee processing group in San Martin provided a favorable springboard for innovation. In contrast, the recent organizational and management problems in community-based dairies in Oruro seems to have discouraged local herders from committing their time and energy to the PMCA.

Institutionalizing use of the PMCA

When the PBA Foundation employed the PMCA with yams, it also applied it in six other commodity chains with which it was working at the time. Since then, it has included informal market diagnoses in other projects. PROINPA is applying elements of the PMCA in the context of a large-scale Dutch-funded project. CAD and SEDERA report incorporating elements of the PMCA into their work. They see the value of implementing comprehensive PMCA exercises with other commodities, but have not done so, for lack of opportunities to include them in other donor-funded projects.

Validity of the theory of change

The PMCA theory of change, or impact pathway (Exhibit 6), corresponds reasonably well with the types of changes observed. In each of the cases, there was an attempt to identify the main market chain actors, to identify the main problems and potentials in the market chain, to identify promising market opportunities, involve market chain actors, develop appropriate innovations, and motivate public authorities to support pro-poor market-chain innovation and development. To the extent that these results have been obtained, there has been movement in the direction of the expected outcomes:

- Market chain actors who are more knowledgeable of the requirements and priorities of other actors
- Increased interaction among market chain actors, oriented toward identifying and exploiting market opportunities
- Improved relationships (trust) among diverse market chain actors and service providers

- Public officials who are more supportive of market chain development
- Norms which are clearer and practices which are more favorable to small farmers
- New products or marketing processes that add value to small farmers' activities
- Services that are better oriented to marketing needs of small farmers
- Technological improvements to respond to market demands
- Small farmers with greater self esteem and who are better organized to participate in the market
- Small farmers who gain more from their market participation than previously
- Small farmers who are more actively engaged in social and economic networks
- Public opinions and policies that are more supportive of small farmers and their market activities

At the time of the study the cases had progressed to different points along this impact pathway, and many factors external to the PMCA itself – variables in the macro context, the nature of the market chain, characteristics of participants in the exercise, and the prevailing norms and practices – influence the degree of success of the exercise. It would be useful to have a more detailed elaboration of the PMCA “action model” that shows how different types of action bring about different types of change. In other words, it would be useful to clarify how the actions outlined the PMCA Protocol (and perhaps others that are not included) can be expected to produce changes along the impact pathways.

Contributions of participation

Participation has been central to generation of the results observed. For example, a protocol for mozzarella production was introduced to Oruro by Argentine cheese experts, but it required an extensive local process of adaptation to local conditions, and all this work was done by local people from SEDERA and INPROLAC working together. In Peru, local participation and capacity development has also been central to the production of results with coffee. Because the womens' food processing group gained experience and public recognition through its participation in the coffee exercise, it later played a central role in organizing a large highly successful public event – “*Salon de Café*” – in Tarapoto on November 30, 2010. This event brought the main producing and processing groups in San Martin together with leading restaurants, coffee shops, and bakeries. Government officials, including the President of the Regional Government participated, along with representatives of NGOs, other development organizations, and the general public. In total, approximately 500 people participated in the event during the day, which included speeches, audiovisual presentations on the virtues of local coffee and how it should be prepared, coffee

tasting, and displays of 17 local brands of coffee. Reporters from local radio and television stations and newspapers were in attendance, and the event was well covered in the local media. In Colombia, participation of the manager of the Sincelejo market motivated him to organize market vendors in the market, in order to improve the flow of market produce and reduce price fluctuations. In Northern Potosi, farmers who were involved in the PMCA have been motivated to increase the diversity of their stocks of native potatoes, which they produce and conserve *in situ*, on their farms. None of these results would have been possible without active participation of small farmers, processors, and others in the PMCA exercises.

Exhibit 15.1. Summary information on the four cases: Factors that have influenced implementation and results.

Characteristics:	1. Coffee, Peru	2. Dairy, Bolivia	3. Native potatoes	4. Yams, Colombia
Macro context	National policies favor market-led development. Dynamic regional government. Tropical production zone. Mestizo population. In-migration from highlands.	National policies favor government programs, food security local development, & conservation. Highland semi-arid production zone near the limits of agriculture and livestock raising. Indigenous population. Zone of out-migration		National policies favor market-led development. Tropical production zone. Multi-racial population. Recent history of social violence.
Market chain	High-value non-perishable non-food cash crop. Most production is exported; small, residual domestic market. Relatively simple processing.	High-value highly perishable food products. Main uses are home consumption & local sale. Competition from industrial processors in other zones. Demanding processing & sanitation. Potential use in public school breakfast program	Traditional perishable staple food crop. Main use is home consumption; occasional sales of surplus production. Limited, traditional processing. Extensive local knowledge; limited global knowledge.	Traditional perishable staple food in domestic market; ethnic food in international market. Subsistence/cash crop. Strong competition in international market. Sanitation requirements for export.
Lead R&D organization	International NGO (Practical Action)	Local NGO linked to Federation of dairy producers (SEDERA)	Highly respected local NGO (CAD)	National/regional NGO with long & strong presence in region (PBA Foundation)
Main participants in PMCA exercise	Org. of small processors, farmers' org., regional govt., local development orgs., enterprises	2 farmers' organizations (sequentially), pizzerias, retailers	Farmers' organizations, govt. agencies, few retailers	7 farmers' organizations, university, market manager, exporter, local development orgs.
Norms and customs (institutions)	Local market is residual; no "coffee culture." Limited interaction among market actors. Weak farmers orgs. Strong women's processing group. Strong presence of Practical Action in supporting coffee industry.	Strong social ties between producers & traditional market agents. Weak farmers' organizations. Previous problems with community-level organizations. Strong role of SEDERA in supporting dairy development.	Previous problems with joint sales to supermarket. Strong reputation of CAD as supporter of rural development and conservation.	Cash sales to local market intermediaries, who also provide credit. Relatively strong farmers' orgs. Long presence of PBA Foundation, promoting PM and organizational strengthening.

Exhibit 15.2. Summary information on the four cases: Implementation of the PMCA.

Dimension:	1. Coffee, Peru	2. Dairy, Bolivia	3. Native potatoes	4. Yams, Colombia
Role of lead organizations	Papa Andina provided intensive methodological support. Practical Action provided strong leadership until 2009 & support through 2010.	Papa Andina provided limited methodological support. PROINPA provided main methodological support. SEDERA engaged directly in processing & marketing.	Papa Andina provided limited support. PROINPA provided methodological & technical support. CAD provided direct support in marketing.	Papa Andina provided moderate support. PBA Foundation provided leadership in PM and organizational strengthening.
Diversity & engagement of participants	Initial focus on women's group. Gradual expansion of networking with development agencies & market agents.	Main focus on producers & community processing plant; involvement of pizzerias, then a few retailers. Limited relationship development.	Main focus on organized producers. Limited interactions & relationship building with market agents & development agencies.	Initial focus on 7 farmers' organizations. Engagement of a few market agents, researchers, & development agencies.
Key dates: Initiation of PMCA End Phase 1 End Phase 2 End Phase 3	June 2007 August 2007 April 2008 October 2008	August 2007 October 2007 June 2008 April 2009	May 2007 October 2007 July 2007 October 2008	April 2008 September 2008 January 2009 May 2009
Training provided	No formal PMCA training events. In-service training of 1 facilitator provided by Papa Andina. Technical training & study visits for coffee processing.	PMCA training events, provided by Papa Andina & PROINPA, at start of each PMCA phase for facilitators from Cases 2 & 3. Technical training for mozzarella preparation	Technical training on ecological production	PMCA training events at start of each PMCA phase for facilitators & lead producers in 7 market chains.
Follow-up after formal completion of PMCA exercise	Follow-up by Practical Action & Papa Andina, stressing organization of small processors & networking with other political, social, & economic actors, until 12/10.	Continued involvement of SEDERA in processing and marketing Vaquita Andina brand cheeses.	Continued support of CAD to establish a network of producer organizations and for marketing Miskipapa.	Continued support of PBA Foundation, stressing establishment of a network of farmer associations.

Exhibit 15.3. Summary information on the four cases: Results of the PMCA exercise.

Result:	1. Coffee, Peru	2. Dairy, Bolivia	3. Native potatoes	4. Yams, Colombia
Changes in knowledge, attitudes & skills (KAS)	Producers, processors & venders learned about needs, roles, & priorities of other market chain actors.	SEDERA gained KAS for market chain innovation. Producers gained knowledge of consumer requirements & ability to prepare mozzarella.	CAD gained KAS for market chain innovation. Farmers learned about consumer requirements & ecological farming.	Producers learned about consumer requirements. Sincelejo merchants learned about producers & their priorities.
Commercial innovations	New brand of coffee (<i>Flor de Café</i>). Several “copy-cat” brands.	New local cheese product introduced into local market under <i>Vaquita Andina</i> brand.	New native potato product introduced mainly to farmers’ markets with <i>Miskipapa</i> brand.	Some improvement of yam quality in local market (no brand name). One association exported yams to USA.
Technical innovations	Improved post-harvest selection, roasting, grinding, packaging	Locally developed protocol for preparing mozzarella cheese.	Improved post-harvest selection, cleaning, & packaging of potatoes.	Improved sorting & cleaning of harvested yams. Increased density of planting to reduce size.
Institutional innovations	New association of coffee roasters. Networking among producers, processors, retailers, government & devmt. agencies. Greater public and NGO support for domestic coffee market	A local NGO (SEDERA) now manages cheese processing and marketing.	Establishment of a weak network of local producer associations (PROPANA).	Organization of merchants to coordinate mktg. & stabilize prices. Incipient establishment of a network of local producer associations.
Empowerment & inclusion	Producers and processors gained local visibility & influence. New brands gained entry into markets, including supermarkets.	Farmers gained confidence in dealing with market agents, development professionals & government officials.		
Institutionalization of the PMCA		PROINPA has incorporated elements of the PMCA into its portfolio of PM. Oruro Technical University is incorporating PMCA into its curriculum.		PBA Foundation applied the PMCA in 7 market chains & has incorporated elements of the PMCA into new projects.
		SEDERA has incorporated elements of PMCA.	CAD has incorporated elements of PMCA.	

5. CONCLUSIONS AND LESSONS

In this section, we present the main lessons we have learned from the four cases, which have implications for improving the PMCA and application of the approach. These lessons relate to the main themes of the study.

Fidelity of PMCA implementation

In the cases studied, perhaps the main weakness in implementing the PMCA was the varying degree of engagement and commitment of some market chain actors – especially private businesspeople – during the exercise. In all the cases they were involved and in some they contributed significantly. But market chain actors did not always assume the proactive leadership role in driving development of new business opportunities and generating demands for innovation which is supposed to begin in phase 3 of PMCA and continue afterwards. This sort of engagement and *proactive leadership from within the market chain* is the essence of the “P” in the PMCA. It is a defining feature of the approach, as envisaged in the original protocol, distinguishing it from other market chain approaches.

Results of the PMCA

The cases studied have generally stimulated learning and innovative thinking and practices, and in some cases results have included commercial, technological, or institutional innovations – new practices that have become mainstreamed in economic and social life. Many participants – including both poor farmers and small-scale market agents – have gained valuable new knowledge and experiences that have empowered them in their dealings with other market actors and service providers. However, less progress has been made in improving welfare, in terms of cash income. These studies and other experiences (Devaux et al., 2009; Horton et al., 2010) indicate that the main benefits of the PMCA come not during the application of the approach but later on, as a series of innovations are tried, adapted, fail, and succeed. Our experience indicates that low-cost support to innovating groups can be very valuable after the PMCA formally ends. It is also important to recognize that in areas of severe poverty, where households engage in multiple on-farm and off-farm activities just to survive, and have very little agricultural surplus for the market, approaches such as the PMCA that focus on innovation in a single value chain may have a limited measurable impact on overall household welfare.

Factors that have influenced implementation and results

In the cases studied, the success of the PMCA in fostering pro-poor market chain innovation was influenced by numerous factors related to the macro context, the market chain, the participants, and customary rules and practices. The economic policy environment sets the stage for local development efforts, and can support or present challenges to use of value-chain development

approaches such as the PMCA. Successful innovation is also more likely in some chains than in others. This highlights the importance of doing a thorough market analysis before investing heavily in market-chain innovation. Where the market surplus of a commodity is limited and strongly influenced by local natural and climatic factors, where the potential demand for new products is limited, or where the costs of introducing an innovation are high, the short-term results of the PMCA may be limited. Personal factors also seem to be of critical importance. Results of these four cases highlight the importance of two types of “innovation champion”: (1) the facilitator in the R&D organization that initiates and supports the PMCA exercise; and (2) one or more individuals in the market chain who champion the innovation process. Without both these types of champion, results of the PMCA can be expected to be limited. Finally, customary rules and practices also influence the success of the PMCA. For example, a history of failed development projects makes people skeptical and can discourage them from committing their time and creativity to a PMCA exercise.

Institutionalizing use of the PMCA

Several organizations that have participated in PMCA exercises have incorporated elements of the approach into their work. But few have adopted use of the PMCA *in toto*. An important result of participating in a PMCA exercise seems to be that individuals learn a new way of approaching problems – with a more comprehensive market perspective – which they apply in their future work. Most of the organizations involved in the four cases analyzed depend on external donors for a large part of their operational funding. In some cases they have been able to incorporate elements of the PMCA – for example the informal market diagnosis in Phase 1 – into new projects. In two cases (PBA Foundation and PROINPA) they have been able to obtain funding for comprehensive PMCA exercises in other market chains. In some cases, universities and research organizations have incorporated the PMCA into their academic curriculum. In future, it would be important to elaborate a strategy for institutionalizing use of the PMCA.

Validity of the PMCA theory of change

These four cases indicate that the theory of change underlying the PMCA is basically sound. However, it is frequently misunderstood or misinterpreted. Some of the individuals we interviewed for the study believed that the PMCA should produce the full range of outcomes in Exhibit 6 during the time the PMCA was to be implemented. However, the main benefits of the PMCA come after the formal application of the PMCA ends. In this sense, the PMCA *triggers* innovation, rather than *produces* it. For this reason, continued support to innovating groups can be very valuable after the PMCA formally ends. Another important point is that the PMCA on its

own is likely to be less useful than application of the approach along with other approaches that strengthen local organizations, promote enterprise development, and engage policy makers.

Contributions of participation

The learning and capacity development that result from participation in a PMCA exercise have a strong influence on the ultimate success and benefits of the exercise. This is partly because the most important results are produced after completion of the formal PMCA exercise, by local groups that continue with innovative activities. For this reason, it is crucially important to ensure the active participation of all relevant stakeholders, not just small farmers, but including other key market actors and service providers.

REFERENCES

Albu, M. and Griffith, A. 2005. Mapping the market: A framework for rural enterprise development policy and practice. Practical Action Publishing: Warwickshire.

Alvarez, S., Bucheli, B., Delgado, R., Maldonado, L., Paz, R., Pozo, A., Rotondo, E., and Thiele, G. 2008. Guía de alcances e impactos de las metodologías participativas sobre la innovación rural. Cambio Andino. Serie: Evaluación de alcances e impactos de metodologías participativas 1. PREVAL: Lima, Peru.

Antezana, Bernet, T., Lopez, G. y Oros, R. 2008, Enfoque participativo en cadenas productivas: Guía para capacitadores. Centro Internacional de la Papa: Lima, Peru.

Bernet, T., Thiele, G., and Zschocke, T., 2006. Participatory Market Chain Approach (PMCA) – User Guide. International Potato Center (CIP): Lima, Peru.

Bernet, T., Thiele, G., Zschocke, T., López, G., Velasco, C., and Devaux, A., 2011. Enfoque Participativo en Cadenas Productivas (EPCP) Manual del Usuario. Centro Internacional de la Papa (CIP) – Papa Andina, Lima, Perú. 151 pp.

Bode, R. Arevalo, D., and Muñoz, P. 2008. Knowledge management and communication to address information access and power asymmetries for resource-poor producers in value chains. Knowledge Management for Development Journal (4, 1).

Chen, Huey-Tsyh. 2005. Practical program evaluation. Sage Publications: Thousand Oaks.

Chen, Huey-Tsyh. 1990. Theory-driven evaluations. Sage Publications: Thousand Oaks.

Devaux, A., Horton, D., Velasco, C., Thiele, G., López, G., Bernet, T., Reinoso, I., and Ordinola, M. 2009. Collective Action for Market Chain Innovation in the Andes. Food Policy (34) 31-38.

Dorward, A., J. Kydd, Poulton, C. and Bezemer, D. 2009. Coordination Risk and Cost Impacts on Economic Development in Poor Rural Areas. Journal of Development Studies 45(1): 1-20.

Douthwaite, B., Alvarez, S., Cook, S., Davies, R., George, P., Howell, J., Mackay, R. and Rubiano, J. 2007. Participatory impact pathway analysis: a practical application of program theory in research-for-development. *The Canadian Journal of Program Evaluation* (22, 2: 127-159).

Engel, P. and Salomon, M., 2003. *Facilitating Innovation for Development: A RAAKS Resource Box.* Amsterdam.

Horton, D., Akello, B., Aliguma, L. Bernet, T., Devaux, A., Lemaga, B., Magala, D., Mayanja, S., Sekitto, I., Thiele, G., and Velasco, C. 2010. Developing Capacity for Agricultural Market Chain Innovation: Experience with the 'PMCA' in Uganda. *Journal of International Development.* 22, 367–389.

Markelova, H., Meinzen-Dick, R., Hellin, J. and Dohrn, S. 2009. Collective action and smallholder market access. *Food Policy* (34: 1-7).

Meinzen-Dick, R., Devaux, A., and Antezana, I. 2009. Underground assets: potato biodiversity to improve the livelihoods of the poor. *International Journal of Agricultural Sustainability* (7,4: 245-248).

Ostrom, E. 2005. *Understanding institutional diversity.* Princeton University Press: Princeton.

Ostrom, E. 2010. Beyond markets and states: polycentric governance of complex economic systems. *American Economic Review.* 100: 1-33.

Patton, M. 2001. Evaluation, knowledge management, best practices, and high quality lessons learned. *American Journal of Evaluation* (22, 3: 329-336).

Reardon, T., Barrett, C., Berdegue, J. and Swinnen, J. 2008. Agrifood industry transformation and small farmers in developing countries. *World Development* (37, 11: 1717-1729). Reason, P. and Bradbury, H. (Eds). 2001. *Handbook of action research.* Sage Publications: Thousand Oaks.

Shepherd, A. 2007. Approaches to linking producers to markets. *Agricultural Management, Marketing and Finance, Occasional Paper 13.* Food and Agriculture Organization of the United Nations, Rome, Italy.

Stake, Robert. 2006. *Multiple case study analysis.* The Guilford Press: New York.

Thiele, G. and Bernet, T (eds.). 2005. Conceptos, pautas y herramientas: Enfoque participativo en cadenas productivas y plataformas de concertación. Centro Internacional de la Papa: Lima, Peru.

Thiele, G., Devaux, A., Velasco, C., and Horton, D. 2007. Horizontal Evaluation: Fostering Knowledge Sharing and Program Improvement within a Network. *American Journal of Evaluation* (28,4) 493-508.

World Bank, 2007. Enhancing agricultural innovation: How to go beyond the strengthening of research systems. Washington, D.C.: World Bank.

Yin, Robert. 2009. Case study research. Sage Publications Applied Social Research Methods Series Volume 5: Los Angeles.

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Claudio Velasco works for CIP in Bolivia as a Papa Andina Initiative coordinator. He participated in the Alliance providing training in the PMCA and analyzing experiences with the approach. He has been involved as co – author in other publications describing and analyzing the PMCA and other related approaches. He earned a BS degree in agricultural science from the Escuela Agrícola Panamericana El Zamorano, in Honduras (1990) and a M.S. degree in International Cooperation from the Complutense University, Madrid, Spain (1993). Currently, he is a part-time PhD student at the Open University in the UK investigating the field of networks for pro-poor agricultural innovation.

ANNEX 1. DOCUMENTS REVIEWED FOR THE CASE STUDIES

General project documents

Delgado, R. and Arévalo, D. Mayo de 2009. Pautas para la sistematización de procesos y el monitoreo de alcances de las metodologías participativas en la innovación rural. Lima: Alianza Cambio Andino.

Documents related to Case 1: Developing a local market for high-quality coffee (San Martin, Peru)

Cabezas, E. Noviembre de 2009. Experiencia de la aplicación del EPCP en el sector cafetalero de la región San Martin. Tarapoto: Soluciones Prácticas.

Castillo, R. Agosto de 2009. Informe del primer taller de marcas locales de la región San Martin. Lima: Alianza Cambio Andino.

Encomenderos, I. and López, G. Octubre de 2008. Informe del tercer gran evento EPCP de cafés especiales en la región San Martin. Lima: Alianza Cambio Andino.

Encomenderos, I. Noviembre del 2008. Informe de la tercera fase de aplicación del EPCP en café especiales en Tarapoto. Lima: Alianza Cambio Andino.

Hareau, G., Maldonado, L., Rotondo, E., and Ruiz, R. Julio 2009. Informe del monitoreo del logro de alcances en actores del EPCP de San Martin. Lima: Alianza Cambio Andino.

López, G. Octubre del 2008. Informe de viaje tercer evento EPCP café. Lima: Alianza Cambio Andino.

López, G. Enero de 2009. Informe de viaje a Tarapoto. Lima: Alianza Cambio Andino.

López, G. Mayo de 2010. Plataforma del café: Asociación de productores de café de calidad tostado molido de la región San Martín. Lima: Alianza Cambio Andino.

López, G. Junio de 2010. Informe de visita de acompañamiento a la plataforma de café en San Martín, Perú. Lima: Alianza Cambio Andino.

López, G. and Encomenderos, I. Marzo de 2009. Informe del seminario sobre el EPCP en la región San Martín, Perú (realizado en la Universidad Cesar Vallejo, Tarapoto). Lima: Alianza Cambio Andino.

López, G. and Encomenderos, I. Enero de 2011. Experiencias con el EPCP en la cadena del café en la región San Martín, Perú. Lima: Alianza Cambio Andino.

Lozano, M. Abril de 2008. Estudio del Mercado del café en la región San Martín. Lima: Soluciones Prácticas.

Lozano, M. and Garfias, A. Julio 2007. Desarrollo del Mercado interno de café de calidad en la región San Martín. Lima: Soluciones Prácticas y Alianza Cambio Andino.

Rodríguez, D. Marzo 2005. Priorización de subsectores estratégicos: Análisis sub-sectoral preliminar. Proyecto productos de montañas, Estudio sub-regional de países andinos. Lima: CONDESAN.

Rodríguez, D., Encomenderos, I. and López, G. Mayo de 2008. Informe técnico del convenio soluciones Prácticas / Alianza Cambio Andino para la aplicación del EPCP. Lima: Alianza Cambio Andino.

Sheyly Reátegui. Diciembre 2010. Informe de los resultados del trabajo realizado en el evento "Salón del Café." Lima. Soluciones Prácticas)

Sin autor. Septiembre de 2007. Informe del primer gran evento EPCP de cafés especiales en la región San Martín. Lima: Alianza Cambio Andino.

Documents related to Case 2: Developing and marketing a new dairy product (Oruro Bolivia)

FEDEPLO. Información institucional de FEDEPLO.

(<http://www.fepale.org/lechosalud/documentos/FEDEPLO08.pdf>)

Fundación SEDERA. Septiembre de 2007. Estudio de identificación de acceso a mercados para derivados lácteos. Elaborado para la Fundación para el Desarrollo Tecnológico del Altiplano.

Oruro: SEDERA.

Paz, R., Delgado, R., Villarroel, T., Gonzales, F., and Ordoñez, A. 2009. Informe técnico de reconstrucción y monitoreo de alcances, caso Oruro – leche de implementación y uso del EPCP y DOI. Cochabamba: Alianza Cambio Andino.

Paz, R., Delgado, R., Villarroel, T., Gonzales, F. and Ordoñez, A. Diciembre de 2009. Registro de monitoreo de alcances de implementación del EPCP en el fortalecimiento de la cadena productiva leche (Challapata, Oruro). Cochabamba: Alianza Cambio Andino.

PROINPA and Fundación SEDERA. Enero de 2008. Insumos para la elaboración del plan de negocios "Fortalecimiento de la planta procesadora de lácteos Challapata (Oruro)" con la aplicación de la metodología EPCP. Cochabamba: PROINPA.

Rojas, M. and F. Rodríguez. Marzo de 2008. Informe técnico, Desarrollo tecnológico del queso mozzarella y dulce de leche. Oruro: Fundación SEDERA.

Velasco, C. Sin fecha. Sistematización de la experiencia de aplicación del EPCP en la cadena de derivados lácteos, Oruro – grupo focal con implementadores. Cochabamba: Alianza Cambio Andino.

Documents related to Case 3: Conserving and marketing native potatoes (Northern Potosi, Bolivia)

CAD y PROINPA. Abril de 2007. Situación actual del proceso de articulación de papas nativas al Mercado. Oruro: CAD.

CAD, PROINPA and Alianza Cambio Andino. Noviembre de 2009. Sistematización de los efectos de la aplicación de metodologías participativas en la cadena papas nativas norte Potosí, en el marco del desarrollo de agronegocios inclusivos. Cochabamba: Fundación PROINPA.

Guidi, A. 2006. Experiencias de industrialización de la papa en Bolivia. Cochabamba. Fundación PROINPA.

Moya, P. Mayo de 2008. Informe del Segundo evento del EPCP, municipio de Huanuni. Cochabamba: PROINPA.

Moya, P. 2009. Registro de la aplicación del EPCP en el norte de Potosí. Cochabamba. Fundación PROINPA.

Oros, R. 2009. Institutional arrangements for market access and poverty alleviation: an investigation of participative market chain approaches in Bolivia. Thesis submitted for the degree of Doctor of Philosophy of the University of London and Diploma of Imperial College.

Paz, R., Delgado, R., Villarroel, T., Gonzales, F. and Ordoñez, A. 2009. Informe técnico de reconstrucción y monitoreo de alcances: El caso Llallagua – Papa nativa de aplicación y uso del EPCP y DOI. Cochabamba: Alianza Cambio Andino.

Paz, R., Delgado, R., Villarroel, T., Gonzales, F., and Ordoñez, A. Diciembre de 2009. Registro de monitoreo de alcances de implementación del EPCP en el fortalecimiento de la cadena productiva de papa nativa (Llallagua, Potosí). Abril de 2009. Cochabamba: Alianza Cambio Andino.

Paz, R., Gonzales, F. and Fernández, W. 2009. El caso Norte Potosí de implementación y uso del EPCP y del desarrollo organizativo para la participación (DOI): Estudio de base. Cochabamba: Alianza Cambio Andino.

Sin autor. Agosto de 2010. Informe del taller de devolución de información de los resultados de implementación del EPCP con papas nativas en el norte de Potosí.

Sin autor. Noviembre de 2008. Articulación de la biodiversidad y cultura a nuevos mercados a través de la aplicación de la metodología EPCP: experiencia de la papa nativa en el norte de Potosí. Cochabamba: PROINPA.

Unidad de Políticas Sociales y Económicas (UDAPE). 2009. Dossier de estadísticas sociales y económicas 2009. Vol. 19. Bolivia.

Documents related to Case 4: Developing new markets for yams (North Coast of Colombia)

Escobar, E., Rengifo, M., and López, G. Setiembre del 2008. Informe del primer gran evento del EPCP en la cadena productiva del ñame. Lima: Alianza Cambio Andino.

Fundación PBA. Sin fecha. Cadenas productivas de los Montes de María. Bogotá: Fundación PBA.

López, G. Enero de 2009. Informe del Segundo gran evento del EPCP. Lima: Alianza Cambio Andino.

López, G. and Rengifo, M. Mayo de 2008. Informe del curso taller sobre el EPCP. Lima: Alianza Cambio Andino.

Maldonado, L. and Pozo, A. Agosto de 2009. Registro de monitoreo de alcances de la implementación del EPCP ñame. Lima: Alianza Cambio Andino.

Maldonado, L. and Beraún, A. Marzo de 2009. Informe del estudio de base, Caso: metodología del EPCP en ñame. Lima: Alianza Cambio Andino.

Pozo, A. Setiembre del 2009. Informe de sistematización de procesos y monitoreo de alcances, epep: Ñame Costa Atlántica, Colombia. Lima: Alianza Cambio Andino.

Rotondo, E., Ruiz, R., Torres, A., Maldonado, L., Hareau, G. and Thiele, G. Febrero de 2011. Evaluación de alcances e impacto del uso del EPCP: Caso el cultivo de ñame en la costa Atlántica, Colombia. Lima: Alianza Cambio Andino.

Ruiz, R. Setiembre 2010. Informe del monitoreo del logro de alcances en actores del EPCP: Ñame costa Atlántica. Lima: Alianza Cambio Andino.

ANNEX 2. INDIVIDUALS INTERVIEWED OR CONSULTED DURING THE STUDY

Interviews for Case 1. Developing a local market for high-quality coffee (San Martín, Peru)

Piera Arbildo, coffee processor, Tarapoto.

Tomas Cotrina, Development Office, Lamas.

Ivo Encomenderos, independent consultant, previously employed by Practical Action and coordinator of the PMCA exercise in San Martín, Tarapoto.

Yzia Encomenderos, Marketing and Tourism Office, Regional Government, Tarapoto.

Richer Garay, y José Rojas, INIA, Tarapoto.

Delicia Guivin y Evelyn Quiroz, Asociación de Mujeres Productoras y Vendedoras de Alimentos Regionales Pre-elaborados – Tarapoto Unido (AMPVARPE-TU), Tarapoto

Daniel Rodríguez, Practical Action, Lima.

Adler Sánchez. Cristo Rey Cooperative, Pamashto, Lamas.

Interviews for Case 2: Developing and marketing a new dairy product (Oruro Bolivia)

Abraham Flores and two employees of the INPROLAC Dairy plant, Oruro

Two producers of milk and cheese on the outskirts of Oruro City.

Owners and employees of various shops and the Eden Supermarket, which market Dairy products in Oruro.

Genaro Marca, Valentin Atahuachi, SEDERA-SEA Foundation, Oruro

Rocío Siles, operator of the FEDEPLO's "Vaquita Andina" store.

Interviews for Case 3. Conserving and marketing native potatoes (Northern Potosi, Bolivia)

Mario Arista, President of the PROPANA Network, Llallagua.

Victoriano Chambi, native potato producer, near Llallagua.

Fidel Calani, Donato Caro, Luis Rodriguez, Jose Luis Qiruchi. CAD. Llallagua.

German Paicho, technician Municipality of Llallagua.

Interviews for Case 4. Developing new markets for yams (North Coast of Colombia)

Benjamin Anaya and Manuel Ávila, PBA Foundation, Sincelejo.

Santiago Perry, María Mercedes Rengifo, Alejandro Álvarez, PBA Foundation, Bogotá.

Luis Narvaez, Manager of the Plaza Market, Sincelejo.

Rosa Quiroz and other members of ASOMUDEPAS, (San Jacinto)



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Our vision is roots and tubers improving the lives of the poor.



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