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DEVELOPING CAPACITY FOR AGRICULTURAL MARKET CHAIN INNOVATION: EXPERIENCE WITH THE 'PMCA' IN UGANDA

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Abstract: The Participatory Market Chain Approach (PMCA) was developed originally to foster pro-poor innovation in potato market chains in the Andean highlands of South America. After promising results in Peru and Bolivia, two questions emerged: (1) Could the PMCA be successfully used to stimulate innovation outside the Andes and in other commodity chains? (2) What would it take to successfully introduce and apply the PMCA in a new setting? The first test application of the approach outside of the Andes was in Uganda. This paper outlines how the PMCA was developed in the Andes and its main features. It then describes the strategies used to introduce the PMCA to Uganda and some of the results to date. The Ugandan experience indicates that the PMCA can, in fact, stimulate technological and institutional innovation in locally relevant agricultural commodity chains in Africa. Since the PMCA requires researchers and development professionals to work in new ways with diverse stakeholders, including not only small farmers but also market agents and policy makers, its successful introduction requires an intensive capacity-development process that fosters the development of social networks, changes in attitudes, and the acquisition of social as well as technical knowledge and skills. Copyright © 2010 John Wiley & Sons, Ltd.

Keywords: market chain; innovation; capacity development; South–South learning

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1 INTRODUCTION

In Africa as elsewhere, agricultural development is taking place in the context of rapid urbanisation and market integration. As a result, the livelihoods of small farmers are increasingly influenced by the demands of urban consumers, market intermediaries and food industries. In modernising agricultural markets, small farmers are often at a significant disadvantage relative to larger commercial farmers, who benefit from economies of scale and better access to market information, services, technology and capital (Weatherspoon and Reardon, 2003; Wilkinson and Rocha, 2006).

Collective action, usually in the form of farmer cooperatives, has been proposed as one way to improve the market participation of small farmers (Shepherd, 2007). While of undoubted importance, small-farmer organisation is only part of the solution. Market-chain innovation is also needed to allow small farmers to benefit from participating in emerging high-value markets. Numerous value-chain approaches have been developed to foster pro-poor market development (Kamplinski and Morris, 2001; Merlin, 2004; Roduner, 2005). However, there is little documentation on their introduction, use and results. This paper aims to begin filling this information void by describing the introduction, use and results of one value-chain approach in Uganda.

2 THE PARTICIPATORY MARKET CHAIN APPROACH (PMCA)

The PMCA was originally developed by the Papa Andina partnership program, hosted by the International Potato Centre (CIP), to promote pro-poor innovation in potato marketing chains in the Andean highlands of Bolivia, Ecuador and Peru. The approach has proven its usefulness in the Andes, particularly in applications with native potatoes that are grown by small farmers in high mountainous areas using traditional production techniques (Ordinola *et al.*, 2008). Nevertheless, some observers have questioned whether the approach would be effective when applied in other commodity chains and in other regions, where socio-economic, technical and institutional features differ significantly from those of the Andes. They also wondered how a new research and development (R&D) approach like the PMCA could be effectively introduced in a new setting.

To test the feasibility and potential utility of the PMCA in sub-Saharan Africa, beginning in 2005 Papa Andina partnered with the Regional Potato and Sweet Potato Improvement Network in Eastern and Central Africa (PRAPACE) and with several local R&D organisations to introduce the PMCA into Uganda and apply it in the commodity chains for potatoes, sweet potatoes and vegetables. Funding for this work was initially provided by the Department for International Development of the United Kingdom (DFID), and later was supplemented with resources from CIP and the Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA).

The present paper addresses two main questions: (1) Can the PMCA be useful in promoting market-chain innovation outside of the Andes and in a range of commodity chains (or was its early success a 'special case', owing to the circumstances of its development and application with native potatoes in the Andes)? (2) What does it take to successfully introduce and apply the PMCA in a new setting? The paper briefly describes the development and main features of the PMCA and the process whereby this approach was introduced and tested in Uganda. Since the PMCA is a novel, knowledge-intensive approach to R&D, its introduction required an intensive process of capacity development

for individuals to acquire new knowledge, attitudes and skills and to build social capital and institutional commitment. After describing the capacity-development strategy employed in Uganda, the paper outlines some results of the PMCA. These include both innovations and strengthened capacity for innovation. The final section summarises our results in relation to the two questions identified above and discusses future prospects for the PMCA in Uganda and beyond.

2.1 The Innovation Challenge

Innovation involves 'the use of new ideas, new technologies or new ways of doing things in a place or by people where they have not been used before' (Barnett, 2004: 1). Until recently, it was commonly assumed that agricultural research would automatically lead to innovation, which in turn would increase yields and production and benefit the poor. In essence, research results were assumed to flow through an 'innovation pipeline' from basic research (conducted by 'advanced research institutes' in the north) to strategic research (conducted by CGIAR centres), on to applied and adaptive research (conducted by national programs) and finally to farmer adopters.

In fact, the relationship between research and innovation is not simple and linear but complex and interactive. As Hall (2009: 31, 36) notes:

- innovation is rarely triggered by agricultural research and instead is most often a response of entrepreneurs to new and changing market opportunities;
- innovation requires knowledge from multiple sources, including from users of that knowledge;
- it involves these different sources of knowledge interacting with each other in order to share and combine ideas;
- these interactions and processes are usually very specific to a particular context and
- each context has its own routines and traditions that reflect historical origins shaped by culture, politics, policies and power.

Advocates of participatory research in the 1970s and 1980s believed the main challenge was to persuade biological scientists of the importance of including farmers in research teams (Ashby, 2009: 40), and considerable effort went into the development of methods for engaging farmers and researchers in participatory technology development. However, subsequent research in Europe and elsewhere has highlighted the importance of involving a much broader range of stakeholders and focusing attention on *innovation per se*, rather than more narrowly on *research* activities (Hall *et al.*, 2001; World Bank, 2007).

2.2 Development of the PMCA

The PMCA addresses the innovation challenge by bringing diverse stakeholders together in facilitated processes that are structured to improve communication, build trust and engage in joint activities that produce technological and institutional innovations in the market chain. The stakeholders involved may include small farmers; various types of market agents (for example, commodity transporters, wholesalers, processors, domestic retailers and exporters); chefs and restaurateurs; researchers; food technologists; extension agents; and specialists in enterprise development, packaging, labelling and quality control, among others.

Papa Andina has worked since the late 1990s with CIP and R&D organisations in Bolivia, Ecuador and Peru to improve the competitiveness of small potato farmers in the Andean highlands of South America. In the early years, a traditional R&D approach was pursued that centred on improving production technology. However, after frustrating results due to marketing problems, *Papa Andina* began to search for new ways to improve the participation of small farmers in market chains.

In 2002, 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. *Papa Andina* used RAAKS to bring market chain actors together to get to know one another, build up trust and explore market opportunities that could be of mutual benefit. Approaches (such as rapid market assessments and focus groups) were added to RAAKS for developing new products. Gradually a new approach emerged, that was named the 'Participatory Market Chain Approach'. This was documented in a PMCA User Guide (Bernet *et al.*, 2006, 2008). In 2003, when the INCOPA market chain work was reviewed in an Andean regional workshop, participants from Bolivia became interested in the approach and decided to begin experimenting with it at home. Over the next few years, the PMCA was further developed and documented based on the work in Bolivia and Peru (Devaux *et al.*, 2009).

2.3 Characteristics of the PMCA

The PMCA engages those who make their living from a market chain (the 'market chain actors') and public and private service providers (such as researchers, credit providers and development workers) in facilitated group processes in which market opportunities are identified and exploited, leading to technological and institutional innovations. As outlined in the *PMCA User Guide*, the PMCA is implemented in a highly structured process with three phases.

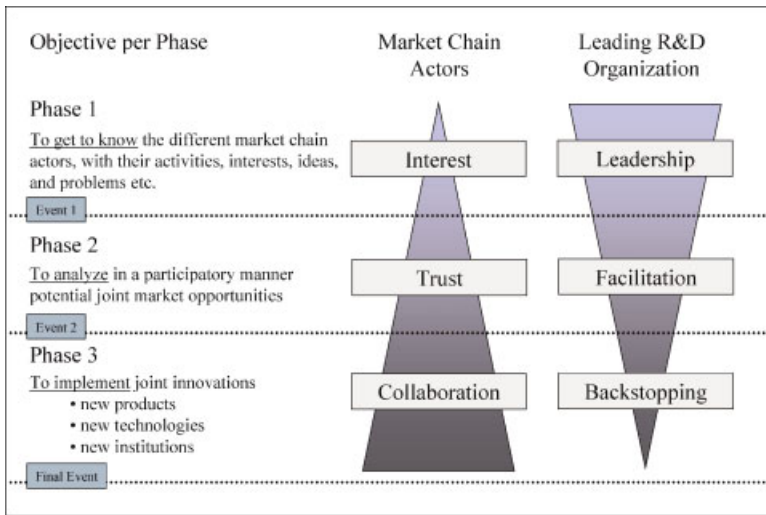
Phase 1: Familiarisation with the market chain and the key actors

Phase 2: Joint analysis of potential business opportunities

Phase 3: Development of market-driven innovations

As illustrated in Figure 1, an R&D organisation initiates the PMCA by selecting the market chains on which to work, identifying potential 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, the R&D organisation facilitates meetings that are designed to foster mutual trust and knowledge sharing among participants and to identify potential market chain innovations. In Phase 3, the market chain actors collaborate in practical innovation processes, with support from R&D organisations.

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 2–4 months and may involve 20–40 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 organisations and other service providers, to discuss results of the market survey and



Source: Bernet et al., 2008.

Figure 1. The three-phase structure of the PMCA methodology. This figure is available in colour online at www.interscience.wiley.com/journal/jid

to exchange ideas. Some individuals who have not been involved so far may also be invited, to gain their interest in the PMCA process and motivate them to participate in future activities.

In *Phase 2*, thematic (commodity) groups are established to explore potential market opportunities. The lead R&D organisation 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 analyse potential market opportunities. In some cases, specialised market studies (for example, focus groups) 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. 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 3–6 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. Based on experiences with the PMCA in Peru and Bolivia, 12–15 months seems to be adequate to implement the three phases of the PMCA.

In practice, as discussed below, implementation of the PMCA has not followed this three-phase process in a well-planned and linear fashion. Unpredictable processes have been triggered that have evolved at different paces. Some groups disbanded in the middle of the process; some perceived opportunities early in the process and launched successful innovations during Phase 2; others that appeared to be ‘on a roll’ during Phase 2 lost momentum and failed to generate feasible innovations in Phase 3; and yet others have continued to interact and innovate years after the end of Phase 3.

To validate the PMCA and build capacity for its use in a country, one has to complete the three phases. However once you get underway the innovation process starts to be

cyclical. . . Some developments will make us start the cycle again or jump from one phase back to the previous one: You expect to build up relations and trust in Phase 1, but even in Phase 3 the trust might be lost and you need to start over again. Nothing in real life is linear!

Berga Lemaga, PRAPACE Coordinator

3 DEVELOPING CAPACITY FOR THE PMCA IN UGANDA

Based on early successes with the PMCA in the Andes, in 2004, the Crop Post-Harvest Programme of the United Kingdom's Department for International Development (DFID) encouraged Papa Andina to introduce and test the PMCA in Uganda, where the results of sweet potato research and development (R&D) were being constrained by marketing problems. To accomplish this, Papa Andina developed a joint project with PRAPACE. Initially this project included only Phase 1 of the PMCA, because DFID support was available only for 2005. After Phase 1 was completed at the end of 2005, there was a break in activities until Papa Andina, PRAPACE and CIP's Sweet Potato Project in Uganda were able to bring together the funding needed for Phase 2. Later, when Phase 2 was completed in August 2006, there was another delay until funding for Phase 3 was obtained from ASARECA. PRAPACE took the lead in negotiating this funding, with support from Papa Andina and CIP's Impact Enhancement Division. Implementation of Phase 3 began in February 2007 and was completed in September of the same year.

3.1 Key Actors and Timeline

Many organisations and individuals have played key roles in introducing, validating and refining the PMCA in Uganda. These include an international agricultural research centre (CIP), an Andean-based partnership program (Papa Andina), an African regional commodity program (PRAPACE), a national agricultural research organisation (NARO), a ministry-level project (Competitiveness and Investment Climate Strategy, CICS), a non-governmental organisation (Africa 2000 Network, A2N) and a private company (the Ssemwanga Group). The diversity of organisations involved reflects the important role of partnership in promoting pro-poor innovation (Hall *et al.*, 2001; Horton, Prain and Thiele, 2009).

Altogether, developing capacity for the PMCA in Uganda involved a sequence of activities spread over 2½ years (Figure 2). The process was much longer than it had been in the Andes because separate funding sources had to be negotiated for each of the three phases. The process involved a *preparation period*, in which Ugandan partners familiarised themselves with the PMCA, and an *application period*, in which they used the method on their own. In applying the PMCA, participants worked in three commodity teams that focused on the market chains for potatoes, sweet potatoes and vegetables. During this period, training activities were combined with hands-on implementation of the PMCA to foster development essential knowledge, attitudes and skills among Ugandan partners.

Initially, CIP and Papa Andina took the lead in defining the steps to introduce the PMCA. But as the process advanced and Ugandan stakeholders became more involved in planning and implementing their own work, responsibilities shifted to the local PMCA Coordinator

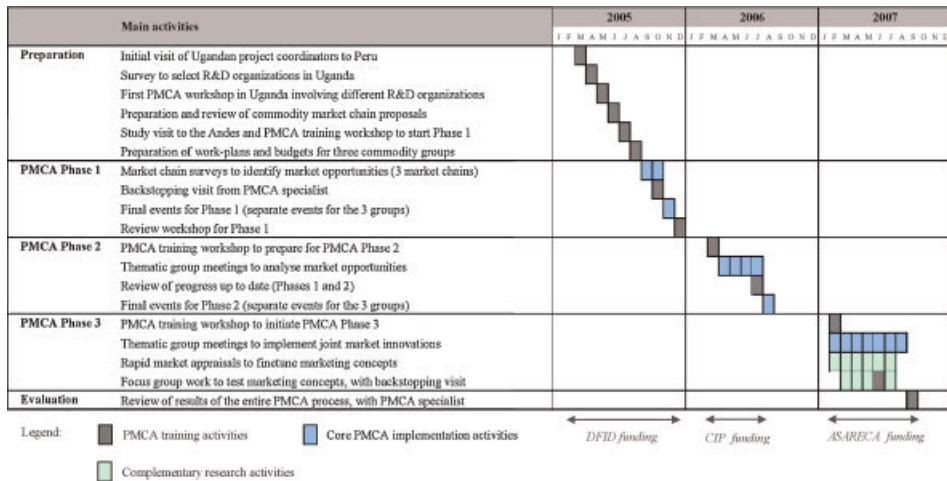


Figure 2. Overview of activities implemented in Uganda. This figure is available in colour online at www.interscience.wiley.com/journal/jid

based at PRAPACE and to three commodity teams. The person selected by PRAPACE to serve as the PMCA Coordinator was a woman who had previously coordinated a sweet potato project that had been successful in its technical work but had faced marketing challenges.

One of the first tasks of the new PMCA Coordinator was to conduct an institutional survey of 40 R&D organisations that were engaged in agricultural marketing work in Uganda. Of these, 20 were invited to the first PMCA workshop where future work with the PMCA was planned. During the workshop, participants formed three commodity groups, which developed proposals for applying the PMCA. Based on the proposals, each participating organisation was invited to nominate one person to continue to work on the PMCA, and to travel with a group to Peru and Bolivia to learn more about the approach. The Mukono Zonal Agricultural R&D Institute (ZARDI) of Uganda’s National Agricultural Research Organisation paid the way for a second participant—the Institute Director—to participate in the study tour.

Once work with the PMCA got underway in Uganda, the PMCA Coordinator served as an interface between individuals who had developed and used the PMCA in the Andes (mainly Bernet and Velasco) and three ‘commodity groups’ that were implementing the PMCA in Uganda. Each commodity group selected a leader to coordinate meetings, visits to markets and processing facilities, focus groups and other activities of the commodity groups.

Women were selected by group members to lead each of the three thematic groups, largely because they had shown interest and aptitude for leading group activities. They were also interested in learning new skills and approaches that would advance their careers, and were willing to dedicate the (considerable) time needed to implement the PMCA, with minimal financial compensation.

The ladies were more interested in PMCA, were more eager to see results, and also more willing to invest their time. That is how the ladies ended up leading each commodity team.

Berga Lemaga, PRAPACE Coordinator

Women always work hard to do a good job. They have to prove that they are capable, and they are known to be trustworthy as well as careful in spending money.

Harriet Nsubuga, Vegetable Commodity Group

When commodity groups were formed and each group had to select a representative, the ladies were selected. I must say that most of these ladies were professional, committed and loved their work. They had mobilisation and facilitation skills and wanted to see the programme succeed.

Immaculate Sekitto, Uganda project coordinator, Phases 1 and 2

I think it was the social benefits that kept us women [the Commodity Team Leaders] glued to the process. I am proud to have these ladies as my friends—some are more like my sisters. We still look out for each other.

Sarah Mayanja, PMCA Coordinator, Phase 3

- Potato Commodity Group
 - The Africa 2000 Network (A2N)—a non-governmental organisation operating in 13 African countries, with headquarters in Kampala.
 - The Ssemwanga Group—a consulting and trading firm owned and operated by a food technologist who specialises in marketing of agricultural commodities.
- Sweet potato Commodity Group
 - The Mukono Zonal Agricultural R&D Institute—one of seven zonal institutes responsible for adaptive research and technology dissemination within Uganda's National Agricultural Research Organisation (NARO).
- Vegetable Commodity Group
 - The Competitiveness Investment Climate Strategy Secretariat, based in Uganda's Ministry of Finance, Planning and Economic Development.

During application of the PCMA, the commodity teams grew to include 20 'Core Team Members' representing 14 R&D organisations. These were mainly non-governmental organisations (NGOs) but also including research organisations, extension projects and private firms. Many R&D professionals participated in the PMCA exercise—often investing significant amounts of unpaid time and effort—to learn the PMCA and to acquire new skills and tools they could use in their work.

More than 100 market chain actors—including representatives of farmers' groups, local market agents, processors, managers of urban markets and exporters—participated in the commodity group meetings. Some of these were active early in the process and then dropped out; others joined or became active later on. Relatively few market agents participated throughout the entire process. Those who did often gained considerable influence in their group. For example, one potato processor and one vegetable exporter participated throughout the process, influencing the groups' decisions on which market opportunities to pursue. In the potato commodity group, more than 10 potato crisp processors participated throughout the entire process. Despite being competitors, they found PMCA an interesting mechanism to share and access new information, thus finding enough common ground to work together in

improving their products and business practices. In the sweet potato group, traders from the Kalerwe market in Kampala were also very steady participants, providing important marketing insight to the group on sweet potato marketing.

The owner of TomCris, a family-run potato crisp processor, had the following to say about his experiences in the PMCA:

I have gotten a lot of knowledge by participating in the PMCA that is helping me now to manage my business and improve the quality of my products and packaging. This allows me to access more markets and has won me recognition by the Ugandan National Bureau of Standards and the government. The UNBS is now basing standards for crisps on my products and I got a barcode for my products about which I am very proud.

Thomas Bukena, owner of TomCris Enterprises

Farmers participated in the commodity groups to meet other market chain actors, to make business contacts, and to get new ideas for processing and marketing their products in urban markets. They also valued the technical information and advice they obtained from R&D professionals or others present at PMCA events.

3.2 Overall Capacity Development Strategy

In Uganda and elsewhere, agricultural research organisations and NGOs are often hesitant to engage with market agents, to avoid becoming 'tainted' by commercial interests. Agricultural researchers usually work alone or with other researchers; and only occasionally with farmers in participatory technology development. They seldom work with NGOs or market agents. Similarly, professionals in NGOs frequently work with other NGOs and sometimes with farmers, but seldom with market agents or researchers. Farmers interact with market agents in the context of commercial transactions, but the relations between these two groups are typically characterised by distrust. Few farmers come into contact with researchers.

Given these infrequency and commonly distrustful nature of interactions between the different groups that have a stake in market innovation processes in most developing areas, introduction of the PMCA implies significant changes in the way the stakeholders view one another and interact. As a result, developing capacity for use of the PMCA requires more than knowledge and skill acquisition; it requires profound changes in attitudes, patterns of interaction, and in many cases in organisational culture.

To promote the needed changes, the capacity-development strategy implemented in Uganda included a number of complementary components. The overall strategy was designed to expose Ugandan partners to the PMCA in ways that would allow them to discover for themselves the strengths and weaknesses of the approach and the knowledge, skills, attitudes and other factors needed to apply it successfully. The strategy employed reflects a model of capacity enhancement that Pidatata (2004) has described as '*creating space for the client to learn by doing, finding the best local fit and nurturing effective behavioural competencies. This process is designed to promote local/country ownership and help bridge the knowledge adaptation gap by leveraging local and global knowledge to bring just-in-time and just-enough expertise to help enhance client capacity*'.

One key feature of the capacity development strategy employed in Uganda was '*South-South learning exchange*' that involved two study tours for groups of Ugandans to the Andes. The study tours allowed the Ugandans to see how the PMCA had operated in the

Andes and to reflect on how this approach might perform in the context of Uganda. Another key feature of the strategy was ‘*action learning*’—an educational process in which participants reflect on their own actions and experiences, in order to improve performance.¹ Opportunities were provided for Ugandans to experiment directly with the PMCA in the context of local commodity chains, with methodological supervision and support from PMCA specialists from the Andes. PMCA training workshops involved both theoretical and practical sessions with group work and personal experimentation with PMCA tools. This allowed Ugandans to acquire both knowledge and practical skills needed to apply the knowledge under real-life conditions. After individual and group work, reflection in workshops was designed to consolidate learning and to trigger a more demand—and market-oriented way of thinking—a key capacity for fostering market-chain innovation.

3.3 Component Strategies

Within the overall strategy of South–South learning exchange and action learning, a number of component strategies were used, which are described and assessed in this section.²

3.3.1 Participatory planning and decision making

Throughout the process of introducing the PMCA and developing capacity for its application, core team members from R&D organisations were involved in planning, implementing and evaluating each phase of the work. The core team members, in turn, engaged market chain actors in planning and reviewing each commodity group’s activities. Participation fostered teamwork and empowerment and ensured that the capacity development process responded to the needs and interests of those involved. The utility of engaging intended beneficiaries in all stages of a capacity development intervention is supported by experience with capacity development in research and development organisations elsewhere (Horton *et al.*, 2003).

3.3.2 South–South learning exchange visits to the Andes

Two study tours to the Andes were central to the capacity development strategy. In March 2005, the PRAPACE coordinator, the recently recruited Ugandan PMCA coordinator, and a representative of the International Centre for Tropical Agriculture (CIAT) visited Peru for initial orientation and to plan initial PMCA activities in Uganda, including a survey of Ugandan R&D organisations and the initial market study.

In July of the same year, 15 Ugandans who had participated in an initial PMCA training workshop in Uganda visited Peru and Bolivia, where they met with the people who had developed and applied the PMCA in the Andes and saw the results *in situ*. This visit played a crucial role in stimulating interest and sharing tacit knowledge on the PMCA—the type of knowledge that is difficult to write down and transmit via written guidelines or classroom teaching.

The Ugandans observed how the PMCA had been applied and the results it had produced in a setting that was comparable in many ways to their own. They were not visiting ultra-modern facilities in North America or Europe—of little relevance to

¹A useful introduction to action learning and up-to-date references are available at http://en.wikipedia.org/wiki/Action_learning

²At the end of Phase 2 and again at the end of Phase 3, we reviewed these strategies in participatory workshop. For additional information see Horton (2008).

Uganda—but small-scale processors that made simple yet significant improvements in processing and marketing under conditions not so different from those back home. Ugandan participants consider the Study Visit to have been crucial for the entire process of introducing the PMCA in Uganda.

People saw that PMCA was not just theory but something that can be put into practice to benefit the communities. . . Seeing that it worked in Boliva, convinced that would also work in Uganda. . . The interesting take-home message was that it was possible to create trust among the different actors that normally don't trust each other and work collaboratively to support themselves and others. Seeing that markets can actually be developed by bringing people together also was a good incentive to really work for it.

Berga Lemaga, PRAPACE Coordinator

The use of visiting Bolivia was seeing things like we see here, but having success in the market. Previously, we were always thinking we needed new crops to get ahead. But in Bolivia we saw that we could make a difference with what we had. . . We also found out the importance of the middleman. Here we've always said that if we eliminate the middleman the farmer will be rich. But we began to see things differently in Bolivia.

Peter Lusembo, Director, Mukono-ZARDI

Sometimes when you read or hear about things, you still don't really understand them. But seeing is believing. We saw what they had done in Bolivia, the successes and the high level of motivation. We saw this and said, 'If they can do it, why can't we?'

Immaculate Sekitto, Uganda project coordinator, Phases 1 and 2

Ugandan researchers and market chain actors were surprised to see farmers and traders working together to develop innovations.

What was useful for me was to see that a farmer can sit and talk with a trader and come up with something useful for both of them. That was really an eye opener for me.

Beatrice Akello, Researcher, Mukono ZARDI

We saw that the PMCA had worked in the Andes, and were anxious to try it out since the conditions (poverty levels etc) were quite similar to those at home. We also had to work hard to show that the investment in the trip was worth it.

Sarah Mayanja, Coordinator, Phase 3

Another important result of the study visit to the Andes was the bonding that occurred within the Ugandan group and the commitment to succeed upon their return to Uganda. This helped to strengthen teamwork upon their return back home.

An important benefit of the trip was that it created a sort of 'PMCA family'. We were all experiencing the same marketing problems and wanted to have them solved

through the new approach. Since we were working in the same field (agricultural development), the trip to the Andes brought us together and inspired us to work as a family to the benefit of all... After Bolivia, my work became much easier. The trip led to a major improvement in teamwork.”

Immaculate Sekitto, Uganda project coordinator, Phases 1 and 2

3.3.3 Refinement and adaptation of the PMCA User Guide

A PMCA User Guide had been drafted in Spanish for use in the Andes. An important element of the work in Uganda was to involve Uganda colleagues in revising the *User Guide* and adding examples and illustrations from Uganda. The final version was published by CIP (Bernet *et al.*, 2006). Participation of the Ugandan colleagues helped to improve the *User Guide* and also to improve their understanding of PMCA and its practical application. Dealing with theoretical issues and its practical application in the Andes provided the Ugandans with important insights and it also generated a sense of involvement in the development of the PMCA itself.

The highly structured information and guidelines on the PMCA was especially key to commodity team leaders who were most concerned about ‘what to do’ in each stage of the PMCA process. Since the Uganda experience helped to clarify and improve this document, it is now a clearly valuable source of information for introducing the PMCA in other areas.

3.3.4 Action-oriented PMCA training workshops

Adult learning is most effective when the subject matter relates to participants’ felt needs and when learning opportunities are linked to practical action. For this reason, classroom training has greatest value when it relates to issues of importance to learners and when it incorporates exercises that illustrate the practical application of abstract theories and principles. Learning is essentially a social process and adults generally learn more rapidly in groups where participants bring diverse knowledge, perspectives and experiences to bear on an issue of common interest and importance. With adequate facilitation, diverse groups have greater potential for interactive learning than do more homogenous groups of individuals with similar backgrounds and experiences.³

Each phase of the PMCA began with an action-oriented training workshop. These workshops provided the initial motivation and knowledge needed to implement the phase and also provided opportunities for skill development. The PMCA training was especially effective because it was delivered by individuals (mainly Bernet and Velasco) who had developed and applied the PMCA in the Andes and who possessed deep personal knowledge of the approach. In these training events, trainees performed learning exercises involving focus group research, rapid market appraisal and other methods useful for product development. Experimentation with applied R&D methods during visits to local markets, processing facilities, food technology laboratories, or other settings that were ‘new’ for many participants generated personal, subjective insights that could not be effectively gained from reading publications or studying training materials (Von Krough *et al.*, 2000: Chapter 2).

³Useful information on these and related aspects of learning is available on the website of the ‘Learning Innovations Laboratory’ of Harvard Graduate School of Education (<http://lila.pz.harvard.edu>). Chambers (2002) presents a useful sourcebook of ideas and activities for participatory workshops in the context of international development.

Because these workshops combined class room sessions with field visits to local markets, supermarkets, processing facilities, and other relevant locations,—which participants found to be valuable ‘eye openers’—participants also developed a common, shared understanding about the market chains, and how specific PMCA tools might perform in such settings.

3.3.5 Hands-on learning with the PMCA in Uganda

With the knowledge and skills obtained during the workshops at the beginning of each phase, the commodity teams were responsible for implementing the PMCA on their own, receiving guidance and feedback from a PMCA specialist (Bernet) based at CIP in Peru. Commodity team members concur that their practical work with the PMCA combined with feedback from a PMCA specialist was indispensable for developing their understanding of the PMCA and their capacity to apply it.

3.3.6 Backstopping and coaching from PMCA specialists

Technical support was provided mainly by a single PMCA specialist based in Lima. He came to Uganda six times to provide training and to assist in the organisation of major events, and provided backstopping for the teams mainly via email from Lima. The Ugandan team leaders place high value on the training received and the quick e-mail responses from Lima. Nevertheless, they would have appreciated having more frequent face-to-face support and feedback from a PMCA specialist based in Uganda. At some points during Phases 2 and 3, team leaders were concerned that their teams were under-performing, as one leader noted: ‘We were not always sure we were on the right track’. Especially at these points of uncertainty, core team members would have valued more direct, personal access to a PMCA specialist.

3.3.7 Knowledge sharing among the commodity teams

During Phase 2 and later on, the commodity teams worked independently. Although team leaders communicated frequently with the local project coordinator, there was little direct communication among the leaders or members of the different teams. In some cases, the team leaders found it difficult to translate the principles and tools outlined in the PMCA User Guide into practical action and to solve problems that arose with the groups—for example how to get producers and traders to communicate openly, when they distrusted each other. It is likely that more interaction among the teams would have helped them share experiences and support one another in solving problems and advance more rapidly with their innovations. The benefits of knowledge sharing among practitioners working in a new area have been widely documented in the literature on organisational learning and knowledge creation (Von Krogh *et al.*, 2000; Collison and Parcell, 2005). After discovering this deficiency in a review of Phase 2, the local PMCA coordinator started to call meetings of commodity group leaders to share information about progress in each group. These meetings were also helpful for planning the final PMCA event at the end of Phase 3, where all groups participated.

3.3.8 Learning-oriented evaluations

Learning-oriented evaluation was intensively used in the process of introducing the PMCA to Uganda. The *PMCA User Guide* encourages team leaders to evaluate major events and to periodically reflect on their work and performance. At the end of each phase, participants in the PMCA exercise reviewed their work together with PMCA specialists. At the end of

Phase 1, a 'horizontal evaluation' (Thiele *et al.*, 2006, 2007) was organised with participants from Uganda, Kenya, Tanzania, Bolivia, Peru and the Netherlands. This exercise allowed the Ugandan PMCA practitioners to share their experiences with local and foreign R&D professionals who were interested in the approach. The external participants contributed to the discussions and assessment of the PMCA process with their own perspectives and experiences. One of the major challenges identified for the commodity groups was 'to strengthen their business and marketing skills to put in practice a strong market and demand focus' (Bernet and Lemaga, 2006: 3). At the end of Phases 2 and 3, an evaluator (Horton) facilitated participatory reviews of the work carried out during these phases and the results obtained. These evaluations produced recommendations that were subsequently used to improve the process of introducing and refining the PMCA (Horton, 2008).

4 RESULTS OF THE PMCA EXERCISE

The applications of the PMCA in Uganda produced a number of 'islands of success', in terms of the commercial, technological and institutional innovations that were at various stages of development at the time the PMCA exercise formally ended in September 2007. Individual and organisational capacities were also strengthened. Technical and institutional innovation that benefits poor farmers is an important goal of the PMCA. However, such innovations inevitably have a limited 'shelf life'. In contrast, strengthening the capacity to innovate—through the development of knowledge, attitudes, skills and social capital—is likely to have greater social and economic impacts in the long run. Innovation processes are continuous and dynamic. In the Andes after completion of PMCA exercises, many 'creative imitation' processes have been observed in which market actors imitated, often with rather small modifications, innovations developed during the PMCA exercise. Such creative imitation should be fostered wherever possible.

4.1 Technological and Institutional Innovations

Nevertheless, experiences with the PMCA in Bolivia and Peru have shown that new product development can stimulate subsequent innovation in production technologies and in new institutional arrangements, such as marketing contracts.

4.1.1 Innovations with potato

The main innovation developed by the potato commodity group was improved packaging and labelling of a potato crisp product. Focus groups indicated that the quality of the product was excellent, even compared to imported potato chips, but that improvements were needed in packaging and labelling. The new packaging is now in use, and sales of this product have increased significantly. About 1000 packs of 750 g are now sold daily in Kampala supermarkets and the Kampala International Airport. Smaller packs are also being sold to lower-income consumers and students. The producer has increased his labour force from 22 to 27 employees, and has increased his income significantly. According to the owner, the main constraints to increasing the quantity and quality of production are now in the supply chain of fresh potatoes available for processing. Consequently, after the PMCA application formally ended in late 2007, the potato commodity group organised a meeting of potato processors, market agents and farmers in Uganda's main potato

producing area, Kabale, to explore ways to improve the supply of potatoes to Kampala-based processors. This illustrates how commercial innovation stimulates the search for technological and institutional solutions to subsequent production bottlenecks.

4.1.2 Innovations with sweet potato

The sweet potato group worked on a number of innovations. During Phase 2, Sulma Foods sent samples of the new variety *Naspot 1* to the Uchumi supermarket in Kampala. After a positive market test and orders were placed for this variety, Sulma Foods engaged contract farmers to produce this variety, in addition to a red-skinned variety they were supplying previously. *Naspot 1* is now being marketed for fresh consumption in the Uchumi supermarket and in four smaller supermarkets. A new snack food product based on orange-fleshed sweet potatoes was developed, and the producer (TomCris) has received many requests for this product. However, production is constrained by the limited supply of orange-fleshed sweet potatoes for processing. The processor and NARO continue to explore means to increase the supply of fresh orange-fleshed sweet potatoes for processing. Composite flours containing orange-fleshed sweet potatoes were developed and pilot-marketed by two Ugandan processing firms. However, their production is constrained by the high cost of the final product and the limited and uneven supply of orange-fleshed sweet potatoes available for processing. After the end of the PMCA process, the sweet potato commodity team leader, based in NARO, has continued to organise quarterly stakeholder meetings, bringing in new members over time. NARO's sweet potato work has also been expanded into additional production zones, where Phases 1 and 2 of the PMCA have been applied. Another project that works to promote the production and use of orange-fleshed sweet potatoes (*HarvestPlus*) hired one of the PMCA facilitators and has applied the approach in its work.

4.1.3 Innovations with vegetables

The vegetable group improved the quality, packaging and labelling of an existing tomato paste product. The group also developed three new products—a tomato chili appetiser, hot pepper paste and pickled hot peppers. The first of these is now being sold by Sulma Foods in local markets including supermarkets, and the demand is steadily growing. A processor who participated in the potato group has also started making a tomato chili appetiser and selling it locally. He is currently discussing with Makerere University and the Uganda National Bureau of Standards ways to upgrade this product so that it can be sold in supermarkets. Motivated by his participation in the vegetable group, an influential Ugandan exporter established a system of contract farming for hot pepper, which continues to function.

4.2 Strengthened Capacity for Innovation

4.2.1 Social capital

Social capital refers to forms of social organisation, such as networks, interpersonal relations and trust, which facilitate coordination and cooperation for mutual benefit (Putnam, 1995: 67). During the application of the PMCA, participants' capacity to innovate has been gradually improved as trust and connectedness were fostered and knowledge, skills and attitudes of participants were strengthened. Many researchers, farmers, local traders, processors and exporters came together for the first time during PMCA exercises. The commodity teams gave many market chain actors their first opportunity to meet and discuss issues of common interest with others in the same market chain. The PMCA also

provided many R&D professionals with their first opportunity to develop productive interpersonal relations and to work together on joint projects of mutual interest.

At the beginning of the PMCA exercise, the PMCA facilitators hardly knew each other. During the first and second workshops, they built relationships that greatly helped them work together in the future. During the PMCA, the facilitators and other group members also mobilised their own personal networks to support innovation processes. When specialised expertise was needed (for example in product testing or selection of packaging materials) professionals known to group members were brought in on a pro-bono basis. Such expertise, which was essential for new product development would have been very expensive to obtain through strictly commercial means.

Socially, a PMCA family has been built, and even today, when the headmistress (I. Sekitto) makes a call or sends out a notice to help out in a situation of need, the response is still overwhelming. In a nutshell, the PMCA family is a social network in which we all look out for each other.

Sarah Mayanja, PMCA Coordinator, Phase 3

In early commodity group meetings, farmers and traders were sometimes suspicious and accused each other of bad dealings in the past. Over time, as group members got to know one another, exchanged information, and worked on common tasks, they began to trust and respect one another. Communication became more open and fluid and collaboration became possible. In several cases, market chain actors developed personal and business relationships with people they met in the commodity meetings, which continued until now. Trust building has been a key feature and result of the PMCA.

We've been telling government that we need R&D to work together with the private sector. Thanks to the PMCA, we've built a platform for R&D where we can get answers to our questions and needs. I always tell my colleagues that when they have a problem they should tell me, and I know where to go for the solution—to the PMCA fraternity.

John Kavuma, President, Federation of Associations of Ugandan Exporters

When you trust each other you can work together and more importantly, you can learn together. One of the key aspects of the PMCA is that it builds that kind of relationships.

Dan Kisauzi, Research into Use Programme

4.2.2 *Knowledge and skills*

Working with the PMCA has led to improvements in many individuals' knowledge and skills. Core team members gained confidence in dealing with a range of market chain actors, with whom they previously had little or no contact. The team leaders strengthened their ability to manage complex group processes, boosted their self-confidence and leadership skills, and improved their facilitation, communication and presentation skills. Team members also learned specific applied research skills in such areas as rapid market assessment, key informant interviewing, and focus groups.

Whenever I came to these meetings I got new ideas, knowledge, and approaches, and when I went to the field people wondered where I got them. They thought I'd been

abroad! ... I combine what I learn here and there, and now when I talk about marketing and innovations, people think I'm knowledgeable... I also learned so many useful new ways to present things to groups...

Sylvester Nganda, Uganda National Farmers Federation

PMCA practitioners often report feeling empowered by the experience, and it has been observed that farmers, small-scale traders, and processors gained self-confidence and became more assertive during the process. At the outset, they could not imagine sitting at a table with researchers or businessmen, much less expressing their views in public. By the end of the process, many of these same individuals had developed a voice and expected to be heard.

4.2.3 Attitudes

In Uganda, as elsewhere, most rural development programs (whether organised by the government, local NGOs, or international donors) are concerned primarily with improving the livelihoods of poor farmers, and most of them have focused on working directly with farmers, rather than working to develop market chains. Farmers as well as government officials, donor agencies and NGOs frequently consider traders as unscrupulous middle men who play little or no useful role in commodity chains.

Working with the PMCA has led to significant changes in attitudes concerning the importance of working to develop market chains and the benefits of working with diverse groups, including traders, to promote pro-poor market chain innovation. Through their work with the PMCA, many participants realised the importance of developing market chains and of working not only with small farmers but also with market agents, rather than attempting to eliminate or bypass them. Many participants have felt 'enlightened' by their experiences and have become 'true believers' in the PMCA.

While I am myself a biological scientist, I have come to realize that all our work must be driven by the market. If the farmer cannot sell what we help him produce, we haven't really helped him.

Peter Lusembo, Director of Mukono ZARDI

4.2.4 Use of the capacity developed

The application and results of the PMCA have stimulated considerable interest in Ugandan R&D organisations, in donor agencies, in policy circles, and among market chain actors who have participated in the work or heard about it.

For example, the Zonal Agricultural R&D Institute of the NARO in Mukono has continued to organise meetings of the sweet potato commodity group, and the institute director has expressed interest in mainstreaming use of the PMCA throughout the organisation. A2N-Uganda has received funding from the Catholic Organisation for Relief and Development Aid to implement a 3-year project entitled, 'Poverty eradication through the PMCA' in eight districts of the country. In 2008, the African Technology Centre invited several Ugandans to share their PMCA experiences with colleagues from Ghana, Kenya, Malawi, Senegal, Tanzania, Uganda and Zambia at workshops on value chains and technology development that were held in Kenya and Uganda. In 2009, one of the PMCA commodity team leaders, a finalist in a regional competition for young professionals and women in science, was invited to Ethiopia to present her paper on experiences with the

PMCA in Uganda (Akello *et al.*, 2009). Some of the team leaders have used the PMCA in consultancy work. The PMCA Coordinator during Phases 1 and 2 has gone on to work with the Belgian development organisation VECO⁴ where she has continued to mobilise local PMCA experts and promote use of the PMCA in value chains.

I have appreciated the team spirit and willingness of commodity team groups to share information and knowledge acquired through PMCA. Wherever I call upon them, they respond positively . . . I must say I use my PMCA knowledge in all my work and activities, and I have continued to preach the gospel.

Immaculate Sekitto, PMCA Coordinator, Phases 1 and 2

In 2008, VECO organised an international workshop on the topic of understanding the role of traders and middlemen in the development of agricultural market chains, which brought together 76 participants from 45 organisations in six African countries. Uganda's PMCA experience was presented to illustrate '*a useful tool to engage small-scale farmers with other market chain actors to improve market access*' (VECO, 2008). In 2009, The Royal Tropical Institute in The Netherlands has been developing a curriculum and program for 'Agricultural Innovation Coaching' in Africa. Professionals who had recently promoted significant innovations in Ethiopia, Ghana, Kenya, South Africa and Uganda were invited to serve as resources, and among them one core PMCA practitioner from Uganda. The PMCA served as a major input into development of the curriculum for preparing innovation coaches.

5 CHALLENGES FACED BY PMCA PRACTITIONERS

As seen in the previous sections, the strategies employed to introduce the PMCA to Uganda were effective in motivating people and developing individual capacities for fostering market chain innovation, and there have been practical results in terms of the innovations produced. Notwithstanding these results, the PMCA practitioners faced a number of challenges in applying the approach in Uganda. Some of these challenges relate to intrinsic features of the PMCA; others relate more to implementation issues.

5.1 Features of the PMCA

The PMCA is not intrinsically 'pro-poor.' The approach can be used to stimulate and nurture innovation in any market chain, and the benefits can be captured by any group. Therefore, to ensure that use of the PMCA benefits poor farmers, those who lead the exercise and facilitate thematic groups need to apply 'poverty filters' that focus efforts on market chains in which there are significant potential benefits for poor farmers. In the Andes, the PMCA has been used most successfully to develop new high-value products based on native potatoes that are grown by small farmers in remote areas using traditional, low-input practices. Here, use of a poverty filter led to the decision to focus on native potatoes, rather than the improved varieties for which large commercial farmers have a comparative advantage. In future applications of the PMCA in Africa and elsewhere, attempts should be made to employ similar poverty filters.

⁴VECO is the acronym of 'Vredeseinlanden Country Office'.

In contrast to the prominent role played by women in facilitating the PMCA process, men have been more prominent in innovation processes: In future, more attention should be paid to ensuring that women and other disadvantaged groups are more fully engaged in and benefit from the results of the PMCA.

Innovation processes are inherently unpredictable: This made it more difficult for PRAPACE and local R&D organisations to manage and administer resources and activities than is the case with traditional research or extension projects, which are guided by work plans or logical frameworks with clearly defined objectives, timetables and budgets.

Innovation does not finish with the Final Event of Phase 3: The PMCA should be viewed as a trigger for innovation processes that need to be nurtured after the initial exercise is completed. Essentially, we are saying that the mode in which R&D is carried out needs to change. Bringing about such a vast cultural change is a daunting challenge. Some progress has been made, but considerable work is still needed.

Mechanisms for scaling up are yet to be fully understood and implemented: Most of the results of the PMCA in Uganda were at the pilot stage at the end of Phase 3. More recently, some innovations have expanded their role in the market and some new ‘copy-cat’ innovations have emerged. A similar pattern has been observed in the Andes, where the most significant innovations have actually occurred long after the formal completion of the initial PMCA exercise. We do not yet have a systematic strategy for supporting innovation processes or scaling them up after completion of the PMCA.

5.2 Implementation Issues

Funding could not be obtained for the entire PMCA exercise: Instead it had to be cobbled together phase-by-phase. This led to substantial uncertainties and delays in the process. In retrospect, it is remarkable that most of the core participants—both the group facilitators and key members—continued throughout the process which stretched over 2 years, rather than the 12–15 months it had taken in Peru and Bolivia.

Facilitation of the commodity groups was not in the work plans of most team leaders: Implementing the PMCA requires a substantial input of time by the commodity team leaders, and it was difficult to justify this use of time within many of the team leaders’ organisations. In future, when a PMCA exercise begins, more effort should be made to enlist the commitment of participating organisations and to negotiate needed adjustments in work plans.

The teams found it difficult to put into practice some of the concepts and methods presented in the PMCA User Guide: Consequently, they would have benefited from closer supervision and more extensive and practical training materials.

It was difficult to convince some market chain actors to invest the time and effort needed to engage in the PMCA and to invest in new, untested processes or products: Consequently, some of the innovation processes progressed slowly and some participants who could have made significant contributions to innovation processes dropped out of the PMCA exercise.

6 CONCLUSIONS

In this final section, we return to the two questions posed in the Introduction and reflect on the prospects for future use of the PMCA in Uganda and elsewhere.

6.1 Can the PMCA be Useful Outside the Andes and in Other Commodity Chains?

The results of the work reported on here with the PMCA in Uganda demonstrate that the approach can be usefully applied outside of the Andes and in a range of commodity chains. In fact, the results with the PMCA in Uganda exceeded our initial expectations. The PMCA has proven useful both for strengthening innovation capacity and for fostering market chain innovation.

The commodity teams initiated the development of a number of commercial innovations that have been further developed after the formal end of the PMCA exercise in late 2007. Examples of successful commercial innovations include improved packaging and labelling for a leading Ugandan potato crisp product, a new sweet potato variety successfully introduced into Ugandan supermarkets, and an improved commercial tomato sauce product.

Development and expanded sales of new high-value food products have stimulated both institutional and technological innovations. For example, an exporter who participated in the vegetable group has established a contract-farming scheme for producing and exporting fresh hot peppers. This scheme (an institutional innovation) includes the provision of improved planting material and technical assistance to small farmers (technological innovations). Potato processors who wished to expand sales of new products have also developed new arrangements with producers and market agents to secure more reliable supplies of fresh potatoes for their businesses.

Valuable capacities for innovation have been created in the realms of knowledge, skills, attitudes and social capital. And these new capacities have been applied in various ways with a growing number of local and international organisations.

6.2 What Does it Take to Successfully Introduce and Apply the PMCA in a New Setting?

Several strategies were employed to introduce, validate and refine the PMCA in Uganda. These included: participatory planning and decision making; South–South learning exchanges, via study tours to Peru and Bolivia; action-oriented PMCA training involving use of a *PMCA User Guide*, participatory workshops, hands-on work with the PMCA, backstopping and coaching; knowledge sharing among practitioners; and learning-oriented evaluations. These strategies motivated people to become involved with the PMCA and to persevere until the completion of the exercise. They promoted the exchange of tacit and explicit knowledge and fostered the development of skills, attitudes and interpersonal relationships needed for successful pro-poor innovation.

Work with the PMCA in Uganda has highlighted some areas where our capacity-development strategies should be improved. The commodity team leaders would have benefited from access to more practical training materials (including case studies). They would also have valued more frequent and direct access to guidance, coaching and feedback from a PMCA expert. CIP and PRAPACE could have also provided more assistance in building commitment and funding support for the PMCA at senior management level within the participating organisations. A priority for CIP is to simplify the PMCA and reduce the time and cost required to implement the approach. Provision should also be made to provide follow-up and support after teams complete the three phases of the initial PMCA exercise.

Based on our self-assessment and experiences in the Andes (Devaux *et al.*, 2009), we believe that future efforts to introduce the PMCA into new settings should be guided by a capacity-development strategy with the following seven elements:

- (1) Participatory planning and decision-making involving local actors.
- (2) Negotiation with senior managers in lead R&D organisations to foster institutional commitment to the PMCA and to support fund-raising for its use.
- (3) South–South learning exchanges, via study tours to the Andes, Uganda, or other sites where the PMCA has been successfully used.
- (4) A comprehensive training strategy that includes action-oriented PMCA training workshops, use of the *PMCA User Guide* and complementary training materials, practical hands-on work with the PMCA in commodity groups, and backstopping and coaching by experienced PMCA facilitators, involving both face-to-face and virtual communications.
- (5) Knowledge sharing among the PMCA practitioners working in different commodity teams.
- (6) Periodic learning-oriented reviews and evaluations to improve the process and document results.
- (7) Continuing support after the completion of Phase 3.

Implementing a thorough capacity development process with these components takes time and resources. But it should be seen as an investment in innovation capacity that will generate returns over a number of years. Our experiences in Uganda and even more so in the Andes, where work with the PMCA began in 2003, is that the capacities developed—at both individual and innovation-system level—continue to be utilised long after the PMCA exercise formally ends. In many cases, the creative imitations that occur years after the initial efforts are the most important ones.

When introducing the PMCA to new settings, it needs to be kept in mind that each situation presents a unique combination of socio-economic, political, institutional and technological conditions. For this reason, the approach will need to be customised for use in each country and market chain. Institutional sustainability issues should be dealt with as priorities from the outset of any process of introduction.

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