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**Strategies to Develop Market Access that Contribute to Resilience in the Bolivian
Highlands**

Case study: PMCA and BAP for chuño and tunta

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**STRATEGIES TO DEVELOP MARKET ACCESS THAT CONTRIBUTE TO
RESILIENCE IN THE BOLIVIAN HIGHLANDS
CASE STUDY: PMCA AND BAP FOR CHUÑO AND TUNTA**

MARÍA FIGUEROA AND CORINNE VALDIVIA

The study evaluates how the Bolivian Andean Platform (BAP), under the philosophy of the Participatory Market Chain Approach (PMCA) reduces transaction costs for native products, Chuño and Tunta, elaborated by small-scale farmers in three communities in Umala-Bolivia. At a first stage, the study identifies how local native potato varieties' programs (NPVP) developed by the International Potato Center (CIP)-ALTAGRO development project empower farmers to be able to participate in the BAP. It also identifies the barriers foreseen by those who do not participate in NPVP. At a second stage, it analyzes which transaction costs are reduced for farmers who participate. It also identifies incentives within the platform that motivate market chain actors' participation. To accomplish the objectives, the authors use qualitative methods to develop a multiple embedded case study, and an empirical study under the Pattern-matching logic (Yin, 1994). For the case study, personal interviews are conducted with all stakeholders of the BAP. For the empirical study, the qualitative analyses consist of the selection of families that produce chuño and tunta for commercial purposes in three communities participating in the Sustainable Agriculture and Natural Resource Collaborative Research Support Programs (SANREM CRSP) and ALTAGRO baseline surveys. Selected chuño and tunta marketers are divided in those who participate in NPVP, and those who do not. On the one hand, the results indicate that NPVP benefit producers' participation in the BAP by promoting collective action, sustainable livelihoods and resilience. The barriers to participate are mainly due to emigration and resulting less labor available at the household. On the other hand, the BAP reduces transaction costs in the market chain, and promotes agency capacity and market involvement for small-scale producers. However, the BAP lacks incentives to motivate farmer's participation, and offers a price that does not pay off producers' efforts for higher quality of chuño and tunta.

Keywords: PMCA, BAP, native potatoes, Umala, Bolivia, resilience, chuño, tunta.

Rural households in the Bolivian Andean Highlands are considered some of the poorest in Latin America (Devaux *et al.*, 2006). The livelihoods of farmers who reside in those areas are often jeopardized by their partial integration to markets (Ellis, 1993) and the lack of added-value for their native products. Because high transaction costs are present in commodity markets (Kruseman, 2001), and households choose not to use the market when the costs are higher than the gains (De Janvry *et al.*, 1991), small-scale farmers in the Bolivian Highlands lack participation in the market. Research has recognized that linking farmers with the market, and improving their access is an urgent challenge in Andean agriculture (Sanginga *et al.*, 2004) to overcome climate and market risks. Diversification of sources of incomes is a key livelihood strategy (Ellis, 1998) of Andean rural households to manage risk (Valdivia and Quiroz, 2003). Livelihood

diversification is the process of creating a diverse portfolio to smooth income (Valdivia and Jetté, 1997) and improve standards of living (Ellis, 1998). By diversifying their crops production, farmers ensure household earnings by reducing fluctuations due to market changes and climate events (Valdivia *et al.* 1996).

In an effort to diversify crop production for income smoothing, and enhance local institutions in the Andean Highlands of Bolivia, the International Potato Center (CIP) supported by the Canadian Agency for International Development (CIDA) developed the CIP-ALTAGRO project. Since 2007, this CIP-ALTAGRO project is developing native potato varieties' programs in rural communities of La Paz, Bolivia. Such programs focus especially on the preservation of local ancient knowledge regarding the production of chuño and tunta, and their subsequent marketability. These are two traditional Andean products made

from native potato varieties. On the one hand, Chuño is a freeze-dried potato product traditionally made by Quechua and Aymara communities of Peru and Bolivia. It is a five-day process, obtained by exposing a frost-resistant variety of potatoes to the very low night temperatures of the Andean Altiplano, freezing them, and subsequently exposing them to the intense sunlight of the day (this being the traditional process). The word Chuño comes from Quechua *ch'uñu*, meaning *frozen potato*. Its production and consumption levels in Bolivia reached 2400 ton/year in 2002 (Guidi *et al.*, 2002). On the other hand, Tunta is a native product similar to chuño that differs from the latter by the use of water floods to eliminate dark components resultant from oxidation processes. Approximately 1900 ton/year of tunta are being produced and consumed in Bolivia (Guidi *et al.*, 2002). These two native potato varieties' products are latent local assets within the livelihood strategy

that could potentially generate marketable outputs for higher income markets.

The CIP-ALTAGRO project is not the only project dedicated to linking small-scale native potato producers to higher income markets in the Bolivian Highlands. There are various methods and approaches based on local institutions that intend to build capacity among farmers, and enhance the value of native resources upon which livelihoods depend (Sanginga *et al.*, 2004). The Participatory Market Chain Approach (PMCA) and the Bolivian Andean Platform (BAP) are strategies built upon existing institutions of rural communities, and aim to get farmers involved in higher income markets. The PMCA and the BAP were developed by the International Potato Center through the Papa Andina Initiative. On the one hand, the PMCA is an approach that “fosters commercial, technological and institutional innovation, through a structured process that builds interest, trust and

collaboration among participants” (Figure 1). On the other hand, the BAP “provides a platform for potato producers, other market chain actors and service providers to come together to identify their common interests, share knowledge and develop joint activities” within the Bolivian Highlands

context (Guerrero, *et al.*, 2005; Devaux *et al.*, 2006). In more explicit words, the PMCA is the framework that structures the participatory processes implemented in the BAP’s meetings and activities, that facilitate market chain collaboration among actors (Figure 2) (Bernet *et al.*, 2006).

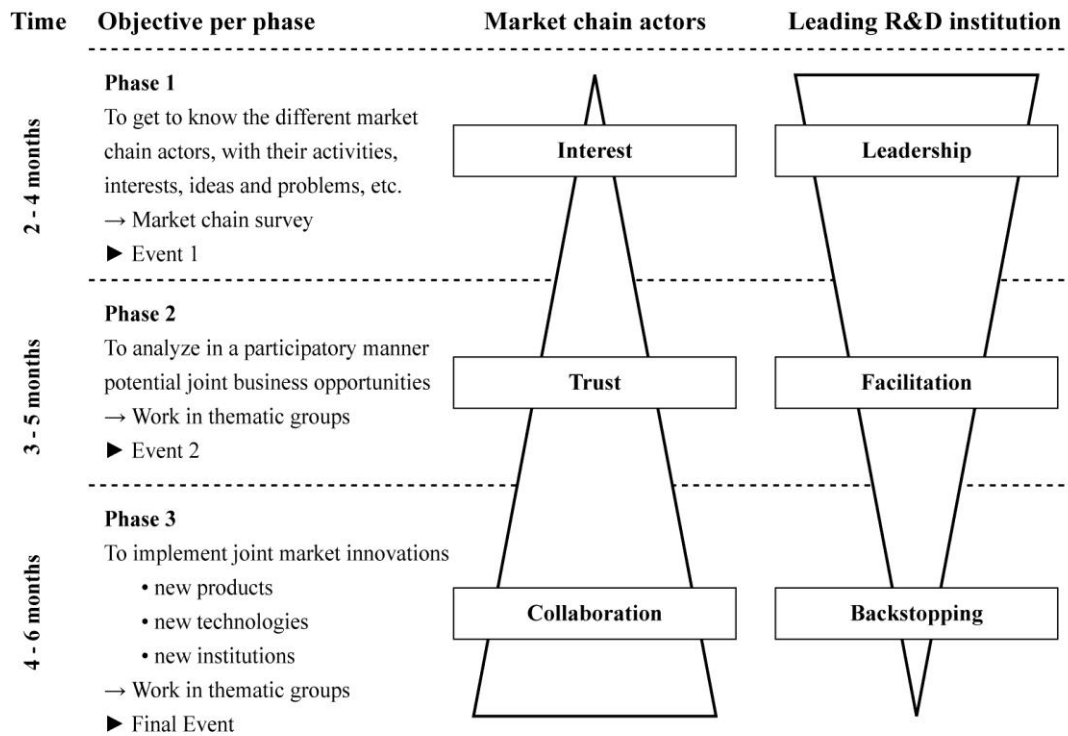


Figure 1. Structure and objectives of the three phase of the PMCA

Source: Devaux *et al.*, 2006. <http://www.cipotato.org/publications/pdf/003296.pdf>

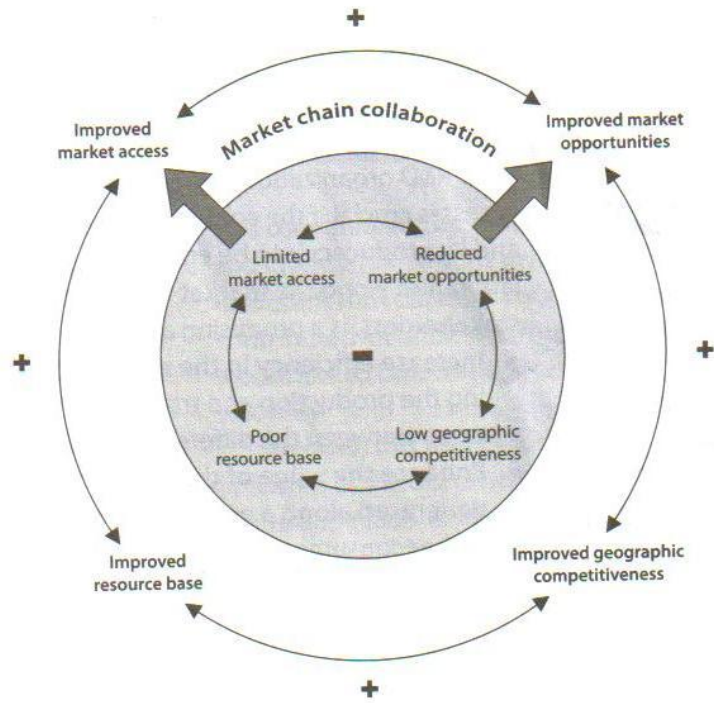


Figure 2. PMCA’s Market Chain Collaboration in the BAP

Source: Devaux *et al.*, 2006. <http://www.cipotato.org/publications/pdf/003296.pdf>

According to the founders of the PMCA, within the processes conducted in the BAP, transaction costs are reduced for all the market chain actors (e.g. farmers, intermediaries, processors and exporters), and information is made more available to those who lack it (flowchart 1). Agency capacity is enhanced as producer’ organizations have the same rights in the

negotiations as other actors of the market chain. The PMCA consists of a set of principles that guide negotiations of native Andean products, such as potato, quinoa, chuño and tunta in the BAP. While this BAP is unique in the Bolivian Highlands, similar projects are being developed by Papa Andina in the Andean areas of Ecuador and Perú with innovative results (Asocam,

2007). T'ikapapa, an initiative of the International Potato Center (CIP), Papa Andina's Partnership Program and the Peruvian INCOPA Platform is a good example. It is a marketing social concept that promotes small-scale farmers' labeled native potatoes from the Peruvian Andean Highlands with Lima's supermarkets. T'ikapapa was chosen from 940 proposals from all over the world to be the winner of *The World Challenge 2007*, a world-wide competition promoted by the BBC and Newsweek magazine, in association with Shell (World Challenge, 2007).

Furthermore, the PMCA's principles applied in the BAP are aimed at developing market access for small-scale farmers' native potato varieties products in households of rural Bolivia (Devaux *et al.*, 2006). The study evaluates how the Bolivian Andean Platform (BAP), under the philosophy of the Participatory Market Chain Approach reduces transaction costs for native products,

Chuño and Tunta, elaborated by small-scale farmers in three communities in Umala-Bolivia. Specifically, the authors identify how local native potato varieties' programs (NPVP) developed by the CIP-ALTAGRO project empower farmers to participate in the BAP. It also identifies barriers foreseen by those who do not participate in NPVP. At a second stage, it analyzes which transaction costs are reduced for farmers who participate in the BAP. It also identifies incentives within the platform that motivate market chain actors' participation. The conceptual framework for the research developed in this paper consists of two parts. First, a case study of the BAP. Second, an empirical investigation, using qualitative analysis of baseline surveys completed by two projects, the Sustainable Agriculture and Natural Resource Management Collaborative Research Support Program' project, Adapting to Change in the Andes, and ALTAGRO of the three participating

communities in Umala-Bolivia: Sirujiri, Kellhuiri, and Vinto Coopani.

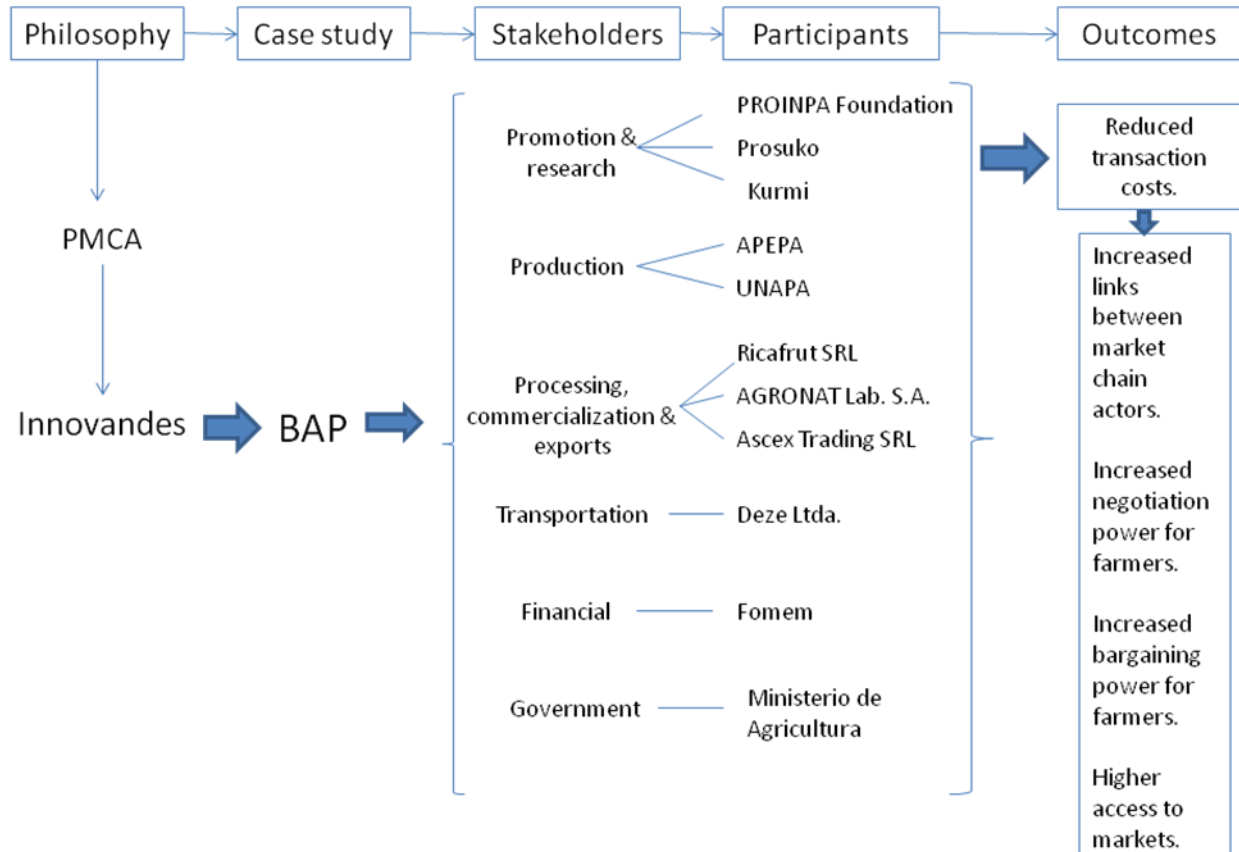
Conceptual framework

Case study: The Bolivian Andean Platform (BAP)

As a platform for negotiations, the BAP intends to reduce transaction costs for all participants, with especial emphasis on small-scale farmers. As a result of reduced transaction costs, the BAP intends to facilitate increased bargaining power for farmers, and in this process provide them with access to higher income markets. The idea is to achieve these outcomes by creating links between all actors of the market chain: producers, intermediaries, processors, and sellers, being the ultimate

goal to reduce the transaction costs of their negotiations. In order to produce such outcomes, in 2001 the UK's Department for International Development (DFID) and the International Potato Center (CIP) created an innovative project called Innovandes. This project seeks to promote interaction among institutions working in the Andes, in an effort to validate and disseminate existing technologies that "build new markets and empower farmers to supply them" (Innova, 2005: 2). Currently, Innovandes is working on research regarding native potato varieties in the Andean Highlands of Bolivia, also supporting the PMCA. Ultimately, Innovandes is the agent of change facilitating the process to enable BAP's outcomes at all levels of the market chain.

Flow chart 1. BAP's structure, participants and outcomes



As shown on flowchart 1, participants of the BAP are entities of promotion and research, transportation, financial support, producers, processors and sellers, as well as the government, which licenses the BAP. PROINPA Foundation, Prosuko, Kurmi, Fomem, DEZE Ltda., and Ministerio de Agricultura (Ministry of Agriculture) participate in the platform to provide strategic support in the negotiation process.

Producers' problematic

Producers in the highlands tend to negotiate at the community level. This experience results in producers lacking in entrepreneurial and business skills required in other marketing spaces. Producers are not organized in formal associations or cooperatives to ensure a consistent supply. Their organization consists of informal groups that commit themselves to offer

produce without explicitly knowing their supply limitations. On the other hand, intermediaries require that communities have collection centers to reduce transaction costs. Due to the lack of producers' organization, collection centers are not formally recognized by other community members. Additionally, producers expect immediate payment for their produce from processors and exporters, whose economic conditions might sometimes limit immediate payments. Furthermore, products like chuño and tunta are mostly marketed when producers are in need of money.

Processors and sellers' problematic

Processors and sellers make decisions based mostly on personal skills, rather than on systematic information of the market. Furthermore, both are economically limited to provide immediate payments to producers and intermediaries, and to add market value to new Andean products. Moreover, given

strict market's requirements, having to deal with informal suppliers and bad quality of produce limits their motivation to negotiate with non-organized producers and/or intermediaries.

The working hypothesis of this study states that the BAP reduces transaction costs for all participants, henceforth it increases bargaining power for farmers, providing higher access to markets.

Empirical study: Participation in NPVP

This research focuses on how the NPVP implemented increases communities' collective action, and the sustainability of their rural livelihoods. Since active communal participation is essential for native potato seed selection, planting, care of the plots, and harvesting, collective action among members of the community is improved. At the same time, because conservation of native potato varieties is the focal point of the programs, local resources

and ancient knowledge regarding them is valued and enhanced. Resilience is henceforth promoted by the active collective participation of rural communities in the conservation of native varieties of potatoes.

The purpose of studying NPVP is to explore if NPVP promote farmers' collective action, and sustainable livelihoods. And how, by doing so, it aims to facilitate resilience to climate and market events.

Table 1. Qualitative selection of observations for interviews

Community	Observations* from SANREM baseline survey	Observations		
		from ALTAGRO baseline survey	NPVP Participants	NPVP non participants
Sirujiri	N/A	6	6	0
Kellhuiri	25	N/A	9	6
Vinto Coopani	29	N/A	8	9
Observations available for selection	54	6		
Total			23	15
observations/interviews			38	

* = number of families

Methods

The authors apply qualitative methods to develop a multiple embedded case study,

and an empirical study under the Pattern-matching logic (Yin, 1994). For the case study, individual interviews were conducted

to all current stakeholders of the BAP. The question addressed to each interviewee was open-ended, and intended to know how the institution/program benefited from its participation in the BAP, in terms of transaction costs, access to information, market access, and development of networks for native products. For the empirical study, the authors use the information from the SANREM and Altagro's baseline surveys. The qualitative analyses for this study consist, on the one hand, of identification and selection of families that produce chuño and tunta for commercial purposes in the communities of Umala: Kellhuiri, Vinto Coopani, and Sirujiri. The three communities were selected because they are participants of NPVP. The SANREM's baseline survey consisted of 54 observations from Kellhuiri and Vinto Coopani, whereas Altagro's baseline survey consisted of six observations from Sirujiri. On the other hand, once the families were identified,

further selection of families who participated in NPVP, and those who did not, was conducted to separate two groups of interviewees: participants and non-participants. The information about participation in local programs was one of the questions in the SANREM's baseline survey. In total, thirty eight families from the three communities were selected for personal interviews, identified as marketers of native potatoes. From the 38 families, 23 were participants of NPVP, and 15 were non-participants. NPVP participants identified were: nine in Kellhuiri, eight in Vinto Coopani, and six in Sirujiri (see table 1). Fewer non-participants families were reached because of the lack of disposition to be interviewed.

In the process of dividing the interviewees into participants and non participants, the authors identified *household characteristics* (gender, income, current economic activities, consumption, land owned and

crops diversification), *assets* (livestock, sheep, native and commercial crops) and *capitals* (human –i.e. age and number of members in the household-, social –i.e. organizations they belong to-, and natural –i.e. native and commercial potato varieties for chuño and tunta). At the end of this process, there were two groups of farmers: NPVP participants and non-NPVP participants, and their characteristics. The questions addressed during the interviews to producers were open-ended, as follows:

1. Why do you participate in the NPVP (incentives, benefits, availability of time, capitals)?
2. Why did you decide not to participate in the native potato varieties' programs (enforcements, shrinking behavior, lack of incentives)?
3. What can you list as benefits, costs, barriers and incentives for your participation in NPVP (capitals,

transaction costs, information, networking)?

Analysis of Cases – Discussion of results

On the one hand, the NPVP encourage collective action among producers who participate, and promote resilience by the enhancement of sustainable livelihoods. Because native potato varieties are usually produced for self-consumption, and are mostly sold in need of urgent money, massive production for the market needs active participation of community members. For all participants, acting collectively is necessary to go ahead with the program. At the same time, because the native varieties of potatoes are adapted to local climate conditions, the livelihoods face less risk against climate changes. It enhances resilience among farmers, who plant native varieties adapted to local climate conditions, instead of commercial varieties such as *Waycha*, which are not locally adapted and

suffer major damage when the communities face major climate events.

The NPVP are available to all members of the three communities: Sirujiri, Kellhuiri, and Vinto Coopani. However, some decide not to participate. Those farmers who decide not to participate base their decision mostly on their lack of labor at home to take care of all activities needed at household. The lack of labor is mostly due to emigration of the youngest and men to La Paz, Santacruz, and Argentina. In some cases, there is only one member at the household. In some others, there is only a couple of elders who handle all activities at the household.

On the other hand, the BAP reduces marketability transaction costs for all stakeholders, as the market information is shared among participants, and there is active interaction at the negotiations. It also promotes capacity of agency in small-scale farmers who are participants of the negotiations. However, that impact is

limited to only those who are allowed to participate. In order to become one of the stakeholders in the BAP, the producers must be formally organized (organization or cooperative), and have a higher quality of produce. The quality of chuño and tunta expected is of uniform size, and clean. Furthermore, the supply of the produce has to be more or less permanent, in order to ensure the product will reach the final market when expected. At the same time, information is made more available for all stakeholders at the BAP. All participants have the right to interact at every meeting, which promotes active collaboration among actors of the market chain. Seen from another perspective, because only those to whom Innovandes can provide with technical assistance can participate, the impact of the BAP is still very limited. Furthermore, the price that is offered at the BAP is established as an average of the year's price, and does not pay off the

producers' efforts to produce the higher quality the processors and sellers require. Moreover, climate changes and imperfect market are constraints that limit a permanent supply for the market. To synthesize, the BAP brings incentives such as reduced marketability transaction costs, active collaboration with other actors of the market chain, development of producers' capacity of agency, and availability of information. In the same way, the benefits received are not balanced with the constraints faced by producers in terms of availability of time for the additional effort that a higher quality of produce needs.

Conclusions

NPVP benefit small-scale producers by promoting their collective action, sustainable livelihoods, preservation of local institutions, and increasing their resilience to climate events. Collective action is promoted because collective organization is

needed to carry on the NPVP long-term process, in terms of identification and selection of native varieties' seeds, planting, fertilization, and harvesting of the communal plots. Sustainable livelihoods are enhanced because NPVP disseminate ancient knowledge regarding native varieties among all participant members of the community, and by doing so those varieties that are most adapted to the conditions of the area are the ones that are mostly planted. Resilience is enhanced by the use of these varieties, which are more resistant to climate variability.

As a result of the process, farmers are more collectively organized and aware of their native varieties potential for niche markets. In consequence, those farmers who participate in NPVP see an increase in their possibilities of access to the BAP or other niche markets that require organization and differentiated products. Barriers to participate in NPVP are mainly emigration

within and outside of Bolivia, age, and the consequent less labor available at the household for other activities.

On the one hand, the BAP main strength rests on its promotion of collaborative interaction between market chain actors and formal organizations of support. Once a month, the BAP analyzes achievements and discusses plan activities with the participation of all participant market chain actors for a specific product. This interaction promotes collaboration, and enhances agency and access to information and markets for Andean producers. On the other hand, the BAP presents weaknesses mostly related to motivation for participants. First, there is no formal commitment from participants; henceforth, any actor is committed to the successful development of activities. Second, the organizational strategies of the platform about negotiation processes, entry and exit rules for participants are not formally established.

Third, the platform does not count with a full financial service entity as a participant, which limits the capacity of the platform to provide financial support to ensure good quality of produce. Deze Ltda. offers partial financial assistance, only in those cases where Innovandes also invests. Fourth, the BAP offers a price that does not pay off producer's efforts for higher quality of chuño and tunta, thus, there is no economic motivation for farmers' additional quality efforts. Fifth, participation is limited to those communities where Innovandes is providing technical assistance, which is also limited to Innovandes' budget constraints.

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