

New products from native potatoes as a vehicle for raising farmer income in Peru

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Abstract

An approach for poverty alleviation in Andean rural areas by linking small scale farmers to new urban markets taking advantage of potato biodiversity and tap new market opportunities is presented in this article. Participatory Market Chain Approach (PMCA) was used to develop Tikapapa as a marketing concept to access new market, but also has demonstrated potential to mobilize capacities of stakeholders to start innovation and promote collaborative partnerships. The prices received by small farmers selling their native potatoes to supermarket, as T'ikapapa were 30% higher than those of potatoes sold through traditional market channels during the 2005 pilot action. The paper closes emphasizing relevant impacts of this intervention.

1. Introduction

The Andean region is one of the most diverse areas in the world and the home of a vast collection of biodiversity for a number of food crops such as potato, maize, bean, tomato, etc. The Andes is a mosaic of ecosystems with distinctive conditions, such as elevation (800 to 4500 masl), rainfall, geology, and the distribution of particular plant and animal species. These diverse agro-ecosystems have allowed only in Peru the development of the widest collection of potato biodiversity that is estimated in more than 3000 native landraces. The close relationship between plant diversity and indigenous people in the Americas have been documented by several authors (Padoch and deJong, 1991; Bellon, 1990; Boster 1984), Brush et al. (1990) mention that in a single valley in the Peruvian Andes, peasant communities may grow between 70 and 100 distinct potato varieties and a typical Andean household may keep up to 50 distinct varieties, including tubers from several potato species. Therefore, native potatoes are a unique asset and a comparative advantage of Andean farmers, since harsh climatic conditions of the high Andean altitudes are the limiting factor to grow other crops.

However, Andean populations have suffered a process of continuous exclusion since the arrival of the first Europeans five centuries ago, keeping them apart from mainstream of modernity and access to the market. This situation resulted in the highest levels of poverty mainly in the rural areas in the Andes as compared to the overall average in Latin America (Table 1), which in the case of Peru represents two out of three rural inhabitants living in extreme poverty (less than US\$ 1 per/day). Extreme poverty and biodiversity coexists in the same rural habitat, where rural population are directly dependent on biodiversity for subsistence, as pointed out in 2003 by United Nations Secretary-General Kofi Annan during the International Day for Biological Diversity: "Biological diversity is essential for human existence and has a crucial role to play in sustainable development and the eradication of poverty.

Biodiversity provides millions of people with livelihoods, helps to ensure food security, and is a rich source of both traditional medicines and modern pharmaceuticals" (www.biodiv.org).

This paper describes the experience in Peru of Tikapapa, a brand name and a marketing concept to link small scale farmers from Andean highlands to supermarkets to take advantage of potato biodiversity and tap new market opportunities.

2. The potato crop in the Andean poverty context

The Andean region comprises seven countries, but it is in Bolivia, Ecuador and Peru where exceptionally inequitable distributions of income and wealth that can be observed, as compared to the overall average in Latin America (Table 1). It is estimated that in the Andean region 20% of the wealthiest population concentrates 48% to 60% of all the national income, as compared to the 20% poorest population that concentrates only 3% to 5%. During the last 23 years income per capita annual growth in Bolivia, Ecuador and Peru has not experimented any development, by the contrary it has been negative in Bolivia (-0.2%) and Peru (-0.4%) and positive in Ecuador (0.8%) (UNDP, 2006).

Table 1. Income per capita and incidence of poverty in Bolivia, Ecuador and Peru

	Income per capita (US \$)	Incidence of poverty (%) of national population)	Incidence of rural poverty (%)
Bolivia	890	63	79
Ecuador	1,820	45	62
Peru	2,140	53	78
Latin America	3,260	44	62

Sources: Anuario estadístico de América Latina y el Caribe. ECLAC. 2004. Ecuador: Poverty assessment. World Bank. 2000.

The general profile of the population living in the Andean highlands is characterized by the small land holdings, less than 5 has of land per family; little adult literacy rate and high child malnutrition levels. For these communities the potato crop is an important cash crop and an important component of the Andean household diet for food security. In a recent survey study carried out in the Central Highlands of Peru by a group from the German Agency for Development, it was considered by 72% of interviewees that the potato crop is a key livelihood strategy for escaping poverty and famine (Antezana, et al. 2005). Another study carried out in Ecuador to determine the relationships of nutritional status of pre-school children and 3 types of potato production systems (strong potato based, intermediate, and less potato based) in seven potato farming communities, has revealed that the highest levels of severe to moderate malnutrition was observed in 51% of children with less than 3 years of age living in strong based potato farming communities, whereas intermediate and less potato based systems showed 30% of children with malnutrition (Orozco, et al. 2006). The same study also revealed that the diets in all the communities had excess energy

intakes due to the high consumption of carbohydrates and fat. Although the diet's profile is related to the type of crop rotations in each systems, as well as the presence of livestock in communities with intermediate and less potato production systems.

High potato production helped farmers to improve their living situation. However, sole increased potato production can not ensure the way out of poverty; for this to occur the increase of potato production has to be associated to a market oriented strategies (Antezana, et al. 2005).

3. Methodology

Coordinated by the International Potato Center (CIP) and funded by the Swiss Agency for Development and Cooperation (SDC), Papa Andina is a regional initiative that promotes mechanisms and approaches to link technology supply with farmers' needs, based on market opportunities within a market chain framework. Papa Andina and INCOPA, its strategic partner in Peru, have developed and conceptualized the Participatory Market Chain Approach or PMCA (Bernet, et al. 2006) as a structured three phase participatory methodology to identify and exploit new business opportunities that can benefit the poor. The first phase of PMCA, is a learning stage where stakeholders are identified and common problems are discussed; and a qualitative assay of the market chain is performed. The second phase called of analysis, thematic groups are organized and facilitation is provided to analyze market opportunities. The thematic groups use the feedback provided during public events organized after each phase to implement jointly commercial, institutional and technological innovations (Figure 1). Along the whole PMCA's process the information exchange among the stakeholders contribute to build trust as an essential condition to start joint venture type of business.

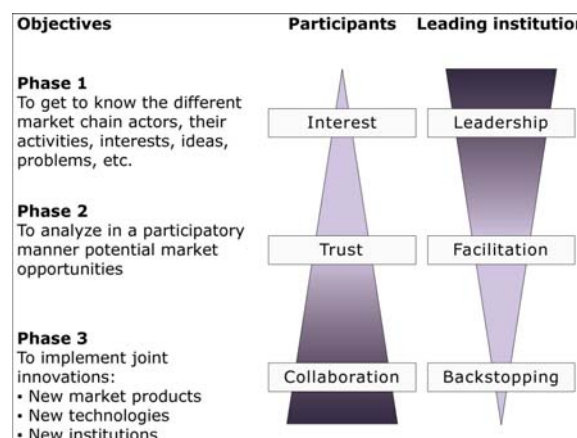


Figure 1. PMCA: a methodology for mobilizing capacities for innovation

The premise with the PMCA approach is that commercial innovations constitute the driving force to promote other type of innovations: technological and institutional, along the market chain that are required for feeding the newly identified products.

Technological innovation may include research for new product development or culinary uses, but also: development of quality norms, variety selection for processing, improvement of production processes, storage and post harvest techniques and commercial information systems. Furthermore, in order to provide the enabling environment for these innovations to take place and to enforce new rules of relationship among stakeholders, is that the institutional innovation result a key element to sustain this new innovation environment. Therefore, the concept of multi-stakeholder platforms has been defined as a space where different stakeholders interact to understand each other better, for learning and developing shared priorities, defining roles and agreeing on joint actions (Devaux, et al. 2005) and becomes a necessary complement for sustainability.

4. Developing market opportunities through PMCA and multi-stakeholder platforms in Peru: the Tikapapa case study

4.1 Context

Although representing about 80% of potato biodiversity in Peru, native potatoes presence in urban markets fell significantly behind improved potato varieties. Initial rapid market survey in Lima revealed that urban consumers know very little about native potato varieties and other by product such as white chuño or tunta (a traditional dehydrated type of potato), but also the survey showed that there was a general interest in promoting the use and learning more about native varieties, because consumers perceive them as natural products. Therefore, with the aim of promoting the utilization and improving the image of native potatoes in Peru, INCOPA project implemented the PMCA method in conjunction with the Ministry of Agriculture (Manrique, et al. 2006).

INCOPA supported the work of two thematic groups, native potato varieties and tunta. Although this paper only describes the results of the first thematic group, both groups worked in a parallel manner to develop a commercial concept for each product to test the commercial feasibility that was detected in previous market appraisal. This is how a commercial prototype for fresh native potato, such as the Tikapapa concept was developed and later become a commercial brand of A&L Co. a for a bag with 1 kilogram of selected and classified native potatoes for retail sale.

4.2 Results

Native potatoes have a strong seasonal harvest time, therefore it was a challenge to organize the logistics to supply continuously the processor with quality raw material. The strategy involved CAPAC Peru, a stakeholder platform that resulted from a previous PMCA application, to act as an organizer and articulating an increasing number of participating communities in the supply chain (Figure 2).

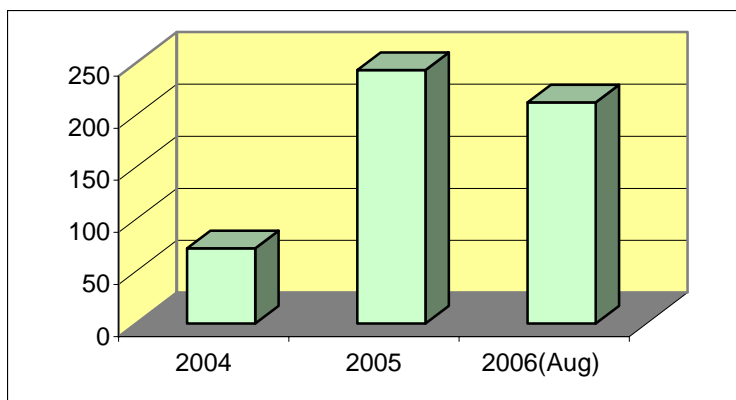


Figure 2. Number of families supplying to Tikapapa

T'ikapapa was launched in year 2004 as an exclusive product for Wong supermarket chain, only 14 MT were sold in the first year and three Andean communities (72 families) were suppliers of A&L processing company. In year 2005, Tikapapa was present in 26 outlets of Wong supermarket, 38 MT were sold and seven additional farmer associations (243 families) joined the T'ikapapa supply chain. In total, 315 families of native potato growers from 10 communities from 3 highland regions (Huancavelica, Junin and Apurimac) were involved and have benefited from the T'ikapapa supply chain, between years 2004 and 2005. In year 2006, it is expected to double the supplied volume to Wong supermarket and to involve other farmer associations (Figure 3).

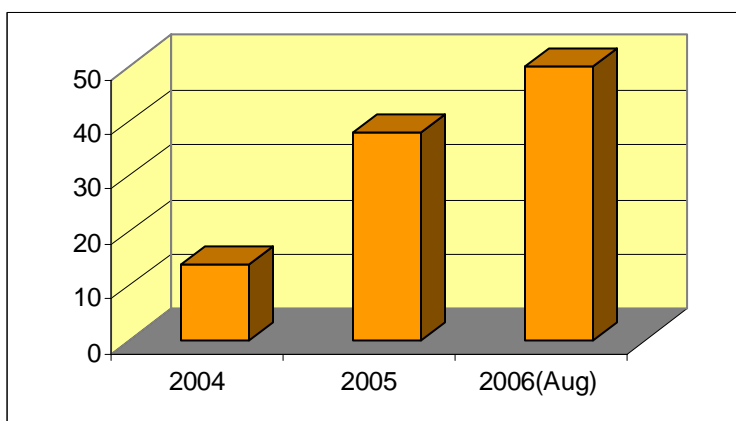


Figure 3. Tikapapa sales per year (MT)

The T'ikapapa marketing concept of linking small scale farmers from Andean highlands to urban markets, taking advantage of biodiversity has succeeded in introducing native potatoes varieties from poor, indigenous, rural farming communities to an exclusive supermarket chain in Lima. This has brought increased revenue to the farming communities involved in the project and a great sense of achievement and pride. The prices received by small farmers selling their native

potatoes to supermarket, as T'ikapapa were 30% higher than those of potatoes sold through traditional market channels during the 2005 pilot action. Formal agreements and contracts have been signed between A&L processing company and the organized farmer communities to ensure stable prices and supply of quality raw material (Figure 4).

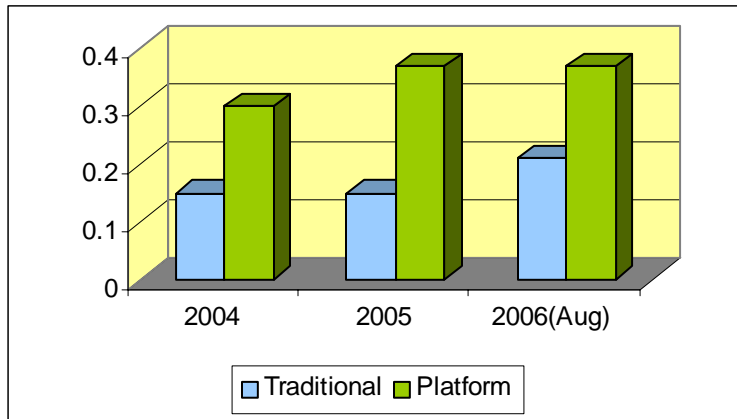


Figure 4. Sale prices (US\$/kg) paid through traditional market channels vs. platform

5. Aiming at impact

Linking small scale Andean farmers to operative commercial circuits and new markets as a strategy for poverty alleviation is a valid assumption, but it can remain as a truncate approach if other complementary skills and capacities are not developed by farmers, as well as if attitudinal changes are not adopted by stakeholders to improve: efficiencies, equity, competitiveness, performance and overall relationships among chain actors to develop a win/win situation. In this sense, the case study shows that PMCA and stakeholder platforms have a significant potential to enable this powerful shift of attitude that can alter the whole course of communication among participating stakeholders that turn into social capital development and reinforcing institutional innovation.

Since its introduction to the market Tikapapa's concept has been replicated by four different brands (Kusandina, Mi terruño, Cosechandina and Vivanda's native potatoes) owned by four entrepreneurs not involved in the PMCA process. This reflects the commercial viability of the original idea that surged from the thematic groups.

Explicit quality standards have been set for the potato varieties involved in the Tikapapa marketing scheme, and these included in formal agreements and contracts which under traditional marketing and trading schemes this were inexistent. This allowed small farmers to gain reliable access to markets and prices where otherwise transaction costs would be too high.

The project has achieved significant public incidence that has been reflected in public awareness and perception about potato biodiversity, reinforcing its conservation (i.e. National Potato Day in Peru, FAO Food Day Award 2006 and Entrepreneurial Creativity 2005 award). It was possible to maintain the interest of consumers and to promote potato consumption by improving potato commercial image and involving culinary schools as a new partner for innovation. Technological improvement for native potato production has become an issue in R&D organizations that want to tackle key topics such as: quality seed production, good agronomic practices in support of organic production, adequate post-harvest management including storage technology.

In Peru the production area of native potato varieties has increased, although a major effort has to be done to coordinate production of different areas since production of native varieties are seasonal and, identity and quality homogeneity has to be assured mainly if different communities participate as suppliers. Regional stakeholder platforms as CAPAC can play a key role to promote not only commercial innovation but also technological innovation at different levels in the supply chain.

There are other intangible impacts that both experiences have attained. The self esteem has been strengthened among participating indigenous communities since their products are appreciated in exclusive urban markets. Urban consumers have revaluated the cultural heritage of Andean farmers and urban supermarket chain owners are aware that including social responsibility in business adds value to their commercial image.

6. Concluding remarks

Local potato biodiversity and their by products can be utilized in a profitable way by small scale farmers and its preservation is ensured by becoming an economic asset of the community. There are clear comparative advantages for Andean farmer communities to utilize their indigenous knowledge for biodiversity utilization to access niche markets by getting organized in small enterprises and improving their ancient production systems.

Working in partnership is a new way of doing business for Andean communities and to enter new routes of commercialization require new partners and institutional schemes of relationship with stakeholders. These experiences reveal that it is a continuous learning process, that require the development of new skills and capacities, particularly among small farmers with weak organization and limited technology that result in poor product quality that restrain its participation in market oriented partnerships.

The development of an adequate organizational structure and new skills to become competitive is a pre-requisite of other Andean communities who wants to join market oriented partnerships, since future commercial initiatives will involve working

through market chains to create other partnerships needed to tap new market opportunities as transformed native potato by products (i.e. potato flakes, chips) for gourmet and novelty snack food markets.

High transaction costs of the initial period of market introduction of new products can become a burden to small agroindustries and endanger further commercial development. Therefore, a careful strategy has to be designed to select the entrepreneur that can assure a commercial development and growth of the new products.

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