Food and Agriculture Organization of the United Nations

Facilitating the entry of smallholders into the new agricultural economy conserving the natural resource base: A case study from the Andes

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Report of Activities .i to .v

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Context

In recent years, agricultural production has undergone profound changes, which have led to its becoming increasingly oriented toward high-value global and urban product markets.

Increased commercialization of agricultural produce, while leading to an increase in the diversity of marketed output at the national level, also leads to increasing regional and farm-level specialization. This could have various opposing effects — not only on the welfare of farmers, but also on the environment. Concerns have been raised on the impacts of increased agro-industrialization on the environment. In particular, there are concerns over increased intensity of use of natural resources, biodiversity loss through the genetic erosion of local varieties and the intensification of chemical use for agricultural production (Pingali, 2001; Barrett et al., 2001; Singh, 2002; Winters et al., 2005).

One region of the world where concerns over the new agricultural economy have been raised is the Andean region. Within this region, Ecuador represents an interesting case because, while agro-industrialization is rather advanced, there are large indigenous populations and widespread poverty, particularly in rural areas. The agriculture relies on a resource base that is somewhat fragile because of the topography. It is also a center of genetic diversity for a number of important crops, particularly potatoes.

The Agricultural and Development Economic division (ESA) of the Food and Agriculture Organization of the UN and the International Potato Center (CIP) in Ecuador have started a collaborative project with the purpose of examining the impacts of agro-processing on the functioning of potato markets, on household welfare, and on environmental outcomes. The general objective of this project is to identify and promote programs and policies in Ecuador that enhance the capacity of smallholders to benefit from dynamic changes in the agricultural economy, with the ultimate aim of both improving their well-being and conserving the natural resource base.

Several activities within the project have been implemented and this first report is meant to:

1) Give an account of details, findings and information collected to assist in the analysis of the potato value chain and the potato agro-industrialization process in Ecuador;

2) Inform on the activities carried out to identify study sites, to assist in the definition of a sampling strategy for data collection (how and where to employ the survey instrument, as well as how to select households and markets to collect data from) and to support the development of a household and market survey instrument that should include agro-biodiversity, pesticides and other environmental concerns;

3) Give an account of activities undertaken to facilitate dialogue[1] with key informants and stakeholders (farmer's organizations, government, the private sector, small farmers etc) in order to understand, qualify and quantify impacts on the natural resources, as well as the

1 By means of meetings and workshop.

barriers for linking small-scale producers with the agro-processing supply chain and other expanding markets at the sub-national level.

Value Chain and Agro-industrialization Process in Ecuador

With respect to both the agro-industrialization process and value chain analysis for potato production, CIP considered appropriate to utilize and share information gathered through its Papa Andina project with the FAO-team.

Papa Andina is a regional initiative that promotes technological, commercial, and institutional innovation in the potato sector in Bolivia, Ecuador and Peru. It began activities in 1998 with financial support from the Swiss Agency for Development and Cooperation (SDC) and is coordinated by the International Potato Center (CIP). This initiative seeks to help reduce poverty among small-scale farmers by improving the competitiveness of potatoes in the market and by allowing small farmers to participate more effectively in markets for potatoes and potato-based products. Papa Andina pays special attention to improving the participation of low-income farmers in productive chains by linking their demands more effectively with sources of new technology, by promoting farmer organization, and by involving small farmers in participatory market chain exercises that develop innovations beneficial to the poor, capturing their demands through an interactive network of public-private partners.

Papa Andina works with a Strategic Partner in each country to promote capacity development, information exchange and collaborative learning. The project has put special emphasis on fostering technological innovation within the context of productive chains and taking into account the needs and interests of all the actors along the chain. In this work, the emphasis is not on identifying common "problems", but "opportunities" that can be resolved through collective action. A Participatory Market Chain Approach (PMCA) has been developed for identifying and exploiting new business opportunities that can benefit the poor. In the PMCA, representatives of research and development organizations and market chain actors work together to identify potential business opportunities and develop innovations that benefit the poor, while at the same time pursuing their individual interests.

Within the Papa Andina project, CIP has also been supporting the establishment and the performance of multi-stakeholders' platforms, which are entities that involve producers, research and development organizations and market chain actors, who come together to share their knowledge and points of view, learn, negotiate, and agree on joint activities to undertake. The platforms have been developed using concepts, instruments and tools coming from other initiatives such as Farmers Field Schools (FFS), Groups for Potato Clones Evaluation (GEC) and Local Agricultural Research Committees (CIAL). The platforms are alliances among local private and public actors to promote competitiveness of small farmers at the local level. The platforms involve 32 associates, among which are found NGOs, universities and municipalities.

Extensive information on potato production systems and their diversity, potato markets and consumption was provided to the FAO team during the first field mission and afterwards. The documentation and information mainly came from the CIP office and the coordinators of the platforms. During the field missions the FAO and CIP team also collected direct information

from interviews with key stakeholders, such as the coordinators of the platforms, an officer of Frito-Lay, the manager of a small producer commercializing enterprise, and potato producers. This information is being compiled in an annotated bibliography[2].

Site Selection and Case Study

The platforms and the participant farmers would represent an excellent case study for the purpose of the project. Therefore, CIP initially selected and proposed the two main potato producing regions of Ecuador, Carchi and Chimborazo. In Carchi, there is a lack of organization and cooperation and most of the population is made up of "mestizos" (persons of mixed Spanish and Indian cultural background), who work individually. In Chimborazo, the farmer organization is better and stronger and there is good support from public and private institutions. In this area most of the farmers are Indians, who value their culture. Originally, the plan was to study two different cases: one region where farmers supply a processing plant for potato chips (Frito-Lay), and another region where restaurants are supplied.

During FAO's first mission, CIP and other relevant stakeholders (INIAP, FAO-office in Ecuador, and some selected NGOs) provided FAO with some primary information. The mission found that a large variety of market channels are being supplied from Chimborazo. Moreover, the highest number of small potato farmers in Ecuador reside in the area, and the PapaAndina/Fortipapa projects have been promoting the use of stakeholder platforms and the organization of farmers to supply new markets.

Both small and large farmers in Chimborazo are entering new market arrangements with various degrees of success. This provides a good "with" and "without" intervention case to compare outcomes, along with the possibility of comparing small and large farmers. Hence, the selection of this area should enable the project to answer questions on how small farmers have been affected by the new agricultural economy, as well as questions on what can be done to help small farmers engage the new agricultural economy through organization and the reduction of transaction costs.

Thus, it was decided to focus on this region only: Comparing a group of farmers involved in selling to these dynamic markets versus farmers that do not. This will allow for a more thorough analysis in one region and will also economize on logistical costs. It will also provide interesting comparisons between different business models, such as organized small farmers selling through the established platforms versus a few cases where small farmers link with a large farmer, who has a contract to supply Frito-Lay.

A reconnaissance of the study areas was implemented during the first and second FAO visits. The intervention to be analyzed will be Frito-Lay, where small producers sell to a potato-chip processing plant through a multi-stakeholder platform.

2 For more information ask M. Meijer and R. Cavatassi, Madelon.Meijer@fao.org and romina.cavatassi@fao.org

Frito-Lay has a potato chip factory in Ecuador that procures about 10,000 tons of potatoes annually from local farmers. Supply contracts tend to favor large farmers, with smaller farmers serving as residual suppliers. However, some public-sector policy initiatives, such as the multistakeholders platforms, are trying to increase access to the processing market by small farmers.

An interesting aspect in this process is that a CIP-derived variety, Fripapa, has been quite successful in supplying Frito-Lay. This variety was developed as part of a collaborative program between the National Agricultural Research Institute (INIAP) and industry. Along with supplying Frito-Lay with chipping varieties, farmers also supply potatoes for the local processing market, particularly for restaurants and "pollerias" (restaurants that specialize in serving chicken, often rotisserie style).

Platforms

Various institutions, such as local NGOs, the Ministry of Agriculture, the National Agricultural Research Center (INIAP), universities, and producers participate in the platforms.

Each platform has two components:

1) Farmers
2) Institutions (Fortipapa, Municipalities, INIAP, Universities, etc.)

Essentially, a platform is a system where different agro-food actors interact with the purpose of improving market chain governance, whilst facilitating a more equitable access to markets for small producers. Platforms can also be a means of looking for financial help or other types of support.

Currently, there are three operating platforms, facilitated either by a local NGO or the municipality:

- Tunguragua (19 communities take part in the platform)
- Quero-Guano (a total of 45 communities, 16 are part of the platform)
- Chimborazo (23 communities are part of the platform)

Two other platforms are in the process of being set up:

- Bolivar
- Cotopaxi

The platforms have been working directly with producers for over two years to improve potato quality. At the beginning, they had problems with quality, particularly for damage caused by the 'gusano blanco' (*Premnotrypes vorax*) and other pests or diseases. The interest in improving quality is, above all, due to stricter requirements of new and/or potential customers, as compared to the wholesalers.

Once potato produce is harvested, it goes to the quality control (also organized by the platform). If the potatoes meet the standard required, they are sold to the clients. Otherwise the platforms

look for second best utilizations (although this represents a problem). Generally, if the potatoes are too small or have some physical damage, they are sold to the common or local market at reduced prices. The third alternative is to use potatoes for household consumption or for seeds, keeping in mind that a good selection is crucial for a good production. Fourth quality potatoes are used to feed livestock.

Commercialization. Before the platforms, farmers used to sell their produce to the wholesalers. The platforms are now trying to facilitate selling directly to bigger clients, avoiding intermediaries. For the moment, the main clients are restaurants and "pollerias", but they are also trying to negotiate contracts with supermarkets and with Frito-Lay. Each platform has one promoter, who manages the flows of potato harvests during the year for the purpose of providing clients with potatoes when required. The promoter negotiates prices as well as standards required by the clients (diameter, color, etc). All the platforms are coordinated for commercialization through the "sistema de negocio campesinos" (farmers' business system), which interacts directly with clients.

To take part in the platform farmers are required to:

1. Participate in the Farmers Field School (FFS) and to any meeting or activity organized by the platform;
2. Give produce to sell through the platform
3. Attain a good quality potato product to meet standards required by clients.

The main focus of the platform so far has been on: **capacity building** (through FFS) and **pesticide reduction** (in collaboration with the Ecosalud project).

Recently, the platforms' activities are moving towards **commercialization**, although they recognize that there is a still much to be done to increase the volume of potatoes sold.

With regard to capacity building, the platforms have focussed on (mainly through FFS):

- Production techniques;
- Pesticides application (reduced and using precautions);
- Fertilizers (when, which ones, how much to use);
- Organization (with a strong focus on women groups).

Environmental Issues were identified through interviews with key informants, as well as through information provided by CIP and through a workshop held in RioBamba in July 2006 (a report on this workshop is found in Annex I).

In general, environmental concerns can be distinguished into:

a. Pesticides

Particular attention has been devoted to the application of pesticides, relating both to previous extensive studies done in the area, as well as the project Ecosalud. For this purpose, the platform teaches how to avoid pests and disease by the use of traps and by early recognition of the signs of pests and disease. If pesticides are required, their application is to be controlled and

precautions used. The platform provides equipment (plastic jacket, gloves, mask and filter) for pesticide application, whose cost is about US$ 31.00. They are trying to find funds to reduce the price.

Through a baseline study carried out in Chimborazo and Quero, the Ecosalud Project determined that:

i) Farmers are not aware of the toxicity levels of the pesticides indicated by the colors of the labels;
ii) If farmers knew how to avoid severe intoxication (bathing immediately; removing wet clothing) they would have some means of reducing risks when they use pesticides;
iii) The utilization of protecting equipment is very important for reducing the exposure to pesticides, but in the area there is minimum use of it.
iv) In potato producing communities, the use of pesticides is high.
v) IB, II, U pesticides are widely used in this area;
vi) Carbofuran is a highly dangerous pesticide that is mostly used in communities that are the worst off.

b. Agrobiodiversity

The platforms have been a key entry point for the distribution of the Fripapa variety, which is very well received by the market and which farmers did not grow before participating in the platforms.

The following varieties are either falling out of production or being produced in smaller quantities since Fripapa has been adopted:

- Rosita
- Clonada (white and big)
- Nativa (Uvilla)
- Superchola
- Catalina
- Gabriela
- Santa Rosa
- Pan
- Suprema
- Uva
- Coneja
- Cecilia
- Esperanza

According to both the farmers and agronomists operating in the area, each variety has a different level of resistance to certain pests and diseases and has different characteristics in terms of diameter, color, shape and flavor, etc. However, it seems that there is no distinction between what farmers grow for sale and what they grow for domestic consumption.

Presently, the platforms are attempting to sell to supermarkets, most of which are in Quito and Guayaquil. They are trying with three supermarkets, although these supermarkets require very high standards, even compared to Frito-Lay. To meet the supermarkets requests, platforms are starting to work with three other varieties (Catalina, Chola and Superchola), which are more suitable for reaching higher standards and for processing. These varieties have a stronger skin and are more resistant for processing, while the skin of Fripapa is fragile and it does not resist washing or other treatments. Indeed, the platforms are not neglecting the importance of the added value of processing, washing and packaging potatoes. They are starting a strategic plan to achieve targeted objectives (supermarkets) within the next five to ten years. With respect to diameter, supermarkets require from five to a maximum of ten centimeters. Moreover, there cannot be a single potato with physical damages of any sort; otherwise all the produce is sent back to the seller.

Other aspects:
Natural resource management, including the soil management and land conservation as well as erosion prevention, is a part of the platforms and their FFS.

Where they exist, communities have problems with the management of the watershed resources in terms of rules, free rider problems, soil erosion and irrigation procedures. A baseline survey and other information regarding the watershed management of Licto[3] will be released in October 2006. Other documents have already been made available to FAO.

Additional issues identified by farmers and other stakeholders during the workshop included overuse, loss of soil nutrients and desertification due to monoculture (see Annex I).

Barriers, Inputs, Production

Identification of Barriers
For the micro side of the research there is a need to understand what kinds of barriers exist, particularly for small farmers, to enter the processing market. In addition to the standard factors, such as distance, size of land, production barriers etc., that are important, attention was focussed on the role that information limitations play and understanding information flows with regard to:

1) Selling to agro-processors,
2) Potato varieties,
3) Type and quantity of pesticides to use, etc

Selling to Frito Lay is more demanding, as it requires standards that are still quite difficult for the farmers to meet. At the moment, Frito-Lay works only with the Chimborazo platform because only the Chimborazo platform is able to meet the standards they require. Frito-Lay demands quality, particularly with respect to sugar content and color, which are very much dependent on the altitude at which the potatoes are produced. Therefore, farmers at a higher altitude can scarcely meet these requirements. Last year about 17-18% of potato production coming from communities connected to Fundacion Marco (the NGO facilitating the Chimborazo platform) was sold to Frito-Lay through their producer association EPAL (Empresa de Productores

3 Licto is a parish within the province of Chimborazo that has an watershed-irrigation process

Agrícolas de Licto*)*. The communities that sell to Frito-Lay are mainly Licto and Punin. They have an annual contract with Frito-Lay, but very low negotiating power. Indeed, Frito-Lay has many options to rescind if strict requirements are not met or other issues arise. However, the vast majority of production is sold to the "pollerias" (up to 60% of the production).

Problems

1) Market prices are too unstable. This creates problems as once the price is agreed a priori only some clients respect the agreed price with no problems. If at the time of payment, the market price is lower, many clients tend to re-negotiate the price. The platform is certainly better for obtaining better and more stable prices than the single farmer Nevertheless, price instability also constitutes a problem for the platform.
2) Keeping quantity and quality stability. They are trying to work on this problem and find some alternative solutions, but it is not easy and the weather instability doesn't help.
3) One weakness of the platforms is that most of the farmers are not used to or do not like public participation or capacity building despite the fact that potato production is the main contributor to the economy of this area. For this reason they are reluctant to take part in the platforms. Platforms' coordinators, as well as participating farmers, find it difficult to sell to other farmers the idea that to access the market and expand their selling capacity, they need to group together to have a higher negotiating power, as well as to produce better quality and a more stable quantity to sell.
4) The platforms are trying to expand their activities, but they encounter many economic limitations. It is very difficult to get credit or other sorts of financial help, both for farmers, as well as for the platforms themselves. EPAL is now trying to access credit (give micro-credit to the farmers). However they are still in the process of negotiating conditions, rates and timing of return and are not very satisfied with the conditions they have managed to reach so far.
5) The other very important element is related to commercialization which is something the platform should improve/expand.

Inputs

Most of the tuber seed is bought from INIAP, although a large part is recycled from previous production. Input provision has sometimes constituted a problem because platforms (and therefore farmers) have not had continuity in seed provision, particularly with respect to quality. They do not buy seed every year. Originally they get certified seed, later they re-utilize seeds selected from their own production.

The seed purchased from INIAP is not certified, but guaranteed. The guarantee could be considered as a step before certification.

The price of seed is about:
12-13 US$ for guaranteed seeds per bag of 50 kilos.
18-20 US$ for certified seeds.

The platforms are now thinking of creating a group of seed producers in the area. In the zone of Pungala (Parish of Licto[4]), a group of ten potato-seed producers is already operating. They start from registered seed and produce other seed from these. This seed producer group started precisely because in the past, platforms and farmers had problems getting good quality seed. Last year they planted 300 Q (about 15 tons) of first quality seed. Farmers realized that good quality is extremely important for a good harvest and recognized that selecting potatoes from harvest is not sufficient (apparently the productivity increased by up to 20% in terms of standards met, as well as more quantity). At the moment they are also multiplying seed through a group of seed multipliers and are trying to produce another variety (Capiro) that is more requested by the agro-industry.

The platforms utilize a planting plan on the basis of demand. Each week, they sell about 600–650 Q (about 30–33 tons) of potatoes. Obviously, the platforms' coordinators influence farmers on what and when to grow, depending on the demand they receive. They push farmers to plant the varieties required by clients. Obviously, they plant seeds of certain varieties on the most adequate soil and land (right altitude, latitude etc). Particularly, they are trying to encourage farmers to produce more Superchola and Catalina, which are more requested by restaurants, as well as by supermarkets. Supermarkets are quite demanding on standards for quality (size, color and sugar content), but not with respect to the application of pesticides.

Sample selection

CIP provided the FAO-team with census data at parish and community level for the household and community survey.

The sample frame will be limited to Chimborazo, Tungurahua and Quero. These are the areas where the platforms are active. Within these zones, variability will be sought in terms of farm size. In Annex II can be found a table with the names of the communities in each one of these three areas (localization and principal characteristics).

One key issue discussed with the representatives of the platforms, as well as with farmers' facilitators and CIP's representative, was the selection of a representative sample that would also allow for a control group (farmers in comparable communities, but who do not participate to the platforms).

While it seems that selecting non-participant farmers in participant communities would be relatively easy, selecting comparable, but non-participant communities is doable, but requires very careful criteria. It is very likely that similar communities are located either at different altitudes or at similar altitude, but with different geographic conditions. However, paying due attention, the sample can be carefully selected and the platforms' representatives, together with CIP, are keen to help in the selection procedure.

4 Licto is the community in which an irrigation system is in place. It is the community most linked to the market. The irrigation system started as a watershed management project. Erosion prevention activities are also done dividing plots under different crops and using stones or grass to separate each plot. There is also an irrigation committee that meets once a month to manage and decide upon irrigation rules and water utilization. More information available upon request.

In terms of key issues for participation, both farmers and coordinators believe that social capital plays a crucial role. In certain cases, it is very strong and therefore, it is easier to have more farmers linked to the platforms. In other cases, households are more individualistic and are more difficult to involve in the platforms' activities.

The communities they work with can be distinguished in three typologies[5]:

- Group A (very good participants)
- Group B (medium level participants)
- Group C (not very good participants).

Further steps

The sample frame will be selected from the areas of Chimborazo, Tungurahua and Quero's platforms. Romina Cavatassi is in charge of applying a matching procedure to make sure that selected communities are statistically comparable. This can only be done once the census data at district level are obtained, in addition to the data already available. The FAO Office in Ecuador agreed to help with obtaining these data.

During a third mission in Ecuador, the communities selected through the matching procedure will be double checked with the help of the CIP representative, as well as platform coordinators.

As an outcome of the workshop, the CIP representative in the person of Patricio Espinosa agreed to meet farmers participating in the platforms and discuss the project objectives to obtain farmers' feedback and opinions. The FAO Office of Ecuador in the person of Ivan Angulo Chacon agreed to provide help in coordinating with the platforms and the farmers. It was also agreed that more data and information will be necessary, both from farmers and from platforms' representatives to both finalize the value chain analysis, as well as to gather a more complete picture for a careful survey design. To this purpose, focus groups will need to be conducted during the third mission to Ecuador. Madelon Meijer, with the help of Patricio Espinosa and platforms' coordinators, will be in charge of these activities, while Romina Cavatassi will be in charge of finalizing sample selection. A more detailed plan for further activities is contained Annex III. The third mission is scheduled for November 2006.

Problems and issues still to be solved

Two Tungurahua volcano eruptions affected the study area, particularly the area of Quero. During the months of August and September the priority was to bring emergency relief to these people. Research and development projects were the last priorities.

5 Some examples and more information about these communities can be found on working documents files and on table for sample selection from Romina Cavatassi and Madelon Meijer Romina.Cavatassi@fao.org

It would be important to select sites that have been less affected by the volcano, otherwise the disruption to production may be so great that it will not be possible to draw useful conclusions about the role of platforms and the new agricultural economy.

It was not possible for FAO-Ecuador to get the agricultural census data at appropriate level for this study. This information is available only a county level and further efforts should be made to try gather the data.

Some Final Notes

- At the beginning of the project the researchers gave more importance to the sale of potatoes from small farmers to Frito-Lay. Later, after visits and information gathering, it was verified that the supply to Frito-Lay was limited to small quantities produced by farmers, whose lands are at low altitudes. This production is collected and commercialized through Licto enterprise in order to cover a minimum share required by Frito-Lay. The greater part of the production is sold to restaurants and 'pollerias" in Ambato and Riobamba through the platforms.

- The agronomists, who coordinate the platforms, and the farmers, want some formalities be carried out in order to permit and facilitate the implementation of the research project in the area. During the workshop in Riobamba (reported in Annex I), it was recommended that a representative from the project explain the project objectives and expected outcomes to them, as well the results from the workshop. The meetings with project representatives and farmers from the platforms have thus been scheduled for the first week in October during the monthly meeting of the platforms. Moreover, it is necessary to coordinate with the entities that participate with the platforms such as (INIAP-Fortipapa, CESA, Fundación Marco, IEDECA, Municipality of Quero).

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Annex I: Workshop report

In Riobamba on Friday, July 21 2006, 43 people participated in the first workshop of the Project "Facilitating the entry of small producers into the new agricultural economy conserving the natural resources base: A case study in the Andes". Eighteen of the participants were farmers belonging to the Consortium of Small Potato Producers (CONPAPA) and the Chimborazo, Quero, and Tungurahua Coordination Platforms, as well as NGOs and public institutions dedicated to rural development, such as CIP, FAO, MAG, and INIAP.

The **purposes** of the workshop were to:

- Present the motivation, concepts, and aims of the project.
- Better understand the relationships between the actors involved in the potato value chain (platforms for shared projects).
- Identify barriers that prevent small farmers from linking to the value chain, as well as the business that has developed around the platforms of the shared project and CONPAPA.
- Analyze the impact of the platforms (value chains) on the environment (agro-diversity, natural resources, etc.) and on human health.

With regard to the methodology, a series of activities were designed to ensure that the workshop's objectives were achieved:

Introduction:

The introduction sought to create an environment appropriate for group work, which facilitated the presentation of the participating individuals and institutions, and which made it possible to record the various actors' expectations about the workshop.

Socialization:

The purpose of the second phase was to share the justification, concepts, objectives, and strategy of the CIP-FAO Project with the participants. This was done via a PowerPoint presentation followed by a dialogue between the participants aimed at clarifying the project's purpose and providing feedback.

Analysis:

This stage of the workshop analyzed the barriers and other factors that facilitate the entrance of small farmers into the market, and the effects of these value chain information processes on the environment and human health. This analysis was conducted through working groups comprised of the various types of participants (farmers linked to the platforms, policy makers, development organizations, and actors from other levels within the potato value chain). These groups were asked to address three thought-provoking questions:

(i) What barriers prevent farmers from linking with value chains and with platforms?
(ii) What are the elements that facilitate this type of process?
(iii) What impact do these market-oriented production processes (platforms) have on the environment and human health?

This stage of the workshop culminated with a discussion during which the various groups shared their work, and the entire conference reached conclusions about the similarities and differences in the visions of the various actors.

Closing:

The workshop organizers took advantage of the closure of the event to inform the participants about the next steps in the process.

The results of the workshop are presented below.

Expectations of the workshop participants

By means of the ***"What do I expect?"*** group-work technique, the workshop organizers facilitated the participation of the various actors and realized what their expectations were. These are summarized below:

1. Become familiar with the production and commercialization chain; identify opportunities, strengths, weaknesses, and threats to small agricultural producers while conserving the environment and improving the economy.
2. Learn the various points of view regarding the entrance of small producers in the new economy.
3. Acquire more knowledge to strengthen the agricultural practices of small producers with improved technologies.
4. Generate concrete actions to benefit the small potato producers.
5. Learn new strategies regarding rural development interventions.
6. Learn to produce better in order to improve the household's wellbeing.
7. Seek mechanisms to improve coordination between the various actors.

Recommendations made by the farmers in the workshop to the project

Recommendations regarding the results

- The seasonal nature of potato production means that there are periods of boom and periods of difficulty; the results of the project should advise the country on establishing norms that allow dealing with this type of situation.
- The project should reflect on the limitations faced by the producers in the different stages of the productive chain.

Recommendations regarding the methodology

- It is interesting to have information and knowledge to elaborate policies that benefit small producers.
- To work successfully with the farmers that comprise CONPAPA and to earn the support of the platforms, one must work in three phases that guarantee the participation of the farmers and which allow the farmers to capitalize the results of the research project. These three phases are:

- Phase I: Socialization among the farmers that belong to CONPAPA and the coordination platforms. During this phase, the farmers must receive information about the project and the project should establish operational agreements for the execution of the activities.
- Phase II: Research and the definition of objectives and production of results and lessons learned
- Phase III: Dissemination of the research results to the farmers who can capitalize on the knowledge and information generated.

- CONPAPA's and the platforms' monthly meetings should be utilized to inform their members about the project's progress and to establish agreements.
- Technicians should not be the only ones to participate in the visits, but farmer leaders, who are familiar with the area and who can express farmers' doubts, should also participate.
- It is important to work with all of the actors who participate in the chain and/or who are involved at the institutional level to obtain all of the different visions.

Linking small farmers to the market and its environmental and social impact. The answers to three questions addressed to the workshop participants

Four groups worked on these topics. Two of the groups included small farmers linked to CONPAPA, the third included representatives from public institutions, and the fourth consisted of various actors involved in the potato production chain. The reflections of these four groups were guided by three thought-provoking questions:

- What barriers impede the entrance of small farmers to the market (value chains, platforms)?
- What elements facilitate the inclusion process?
- What impact do these agro-business processes have on the environment and people?

The conclusions of each group are reported below.

Group 1: FARMERS

Barriers that impede the entrance of farmers into the market:
- Lack of organization
- Lack of knowledge of other markets (traditional)
- Lack of knowledge about production costs
- Lack of knowledge about production quality
- Intermediaries (abuse of prices)
- Lack of information about market prices
- Lack of planning with respect to planting crops

Difficulties in the Coordination Platforms:
- There is insufficient collaboration among farmers that belong to the platform
- Agreements are not fulfilled
- Lack of knowledge
- Lack of planning

- Unplanned and disorganized production

Factors that facilitate the insertion of farmers into the market:

- Strengthened organizations
- Better prices
- Secure market
- Planned and organized production
- Cleaner potatoes (safer, as not contaminated)
- Institutional support
- Added value (classification)
- Identification of new markets and sales support
- Training specific to potato production

Impacts on the environment and people:

Negative impacts

Environment	People
- Use of just one variety - Abandonment of native varieties - Pollution due to chemical use - Stopped producing other crops (corn, barley, wheat, beans, etc.) - Introduction of potatoes areas inappropriate for their production	- Opportunistic - Disinterested - Critical, especially of women - Human contamination by chemicals

Positive impacts

Environment	People
- Soil conservation - Decontaminated soil - Plague control - Efficient use of water for irrigation - Proper management of fertilizers	- Seed selection - Improved standard of living (income, health, nutrition) - Stable work - Women's access to training

Contribution made during the discussion:

- Not many community members are part of it; only those that have access to irrigation participate.
- There are approximately 1,500 people participating in the platform.
- Within the platform, there has been a favorable impact on women; the training is more directed at them. Likewise, children have increased access to the formal training.

Group 2: FARMERS

Barriers that impede the entrance of farmers into the market:

- Lack of organization among the producers (egoism) due to the fact that they cannot face the market alone.
- They cannot produce because they do not have water for irrigation (access to productive resources).
- Lack of access to technology to produce quality products.
- Intermediaries control the market and there is no capacity to convince businessmen.
- Municipalities do not allow producers to sell in street markets.
- It is difficult to enter the market because they take away your stand.
- Intermediaries manipulate the market.
- Producers cannot sell directly because there is a lack of transportation.
- No access to technology.
- Due to a lack of technology and unstable production, small producers cannot satisfy market demands.
- Lack of product selection
- Producers do not use certified seed.

Factors that facilitate the entrance of farmers into the market:

- Producers are organized to compete in the market, they plan production (planting and harvest) according to market demand.
- Prohibiting business people from fixing prices and intervene so that producers can define market prices.
- Obtain support from the institutions that comprise the platforms by going to the meetings and informing other producers.
- Be prepared to improve productivity and quality to achieve better market access.
- Acquire good seed to produce quality products.

Impacts on the environment and people:

- Farmers' field schools have trained producers to reduce their use of chemicals and to switch to organic products.
- Farmers' health has improved now that they are not using red label chemicals.
- Emigration has decreased.
- Family incomes have increased.
- Potato sector more organized.
- Better access to technology thanks to the platforms.
- Awareness has been raised among farmers to achieve better production.

Contributions made during the discussion:

- The process should be oriented towards the market.
- It requires an integral vision of the chain and knowledge of each of its links.

Group 3: VARIOUS ACTORS IN THE CHAIN

Barriers that impede the entrance of farmers into the market:

- Variable prices
- Agro-industry with little social consciousness
- Lack of commitment on the part of farmers – they have their good moments and their bad.
- Lack of compensation mechanisms during critical periods.
- Smuggling of contraband potatoes
- Lack of formal agreements, legalized contracts
- Lack of public market policies
- Lack of alternative markets
- Lack of information systems that provide daily prices at the national level.
- Limited support; it is limited to specific intervention areas.

Factors that facilitate the insertion of farmers into the market:

- Support institutions (focus on the agro-food chain).
- Mechanisms and platforms
- Willingness to work with institutions
- Improved income
- Current level of organization favors future action
- Technical knowledge of crops
- Favorable agro-ecological conditions

Impacts on the environment and people:

- Social
  - Income
    - Organization
    - Health
- Environmental
    - Monoculture
    - Decreased varieties
    - Marginal areas: paramos
    - Better use of pesticides

Contributions to the discussion:

- Lack of strong leadership that can push the project.
- There should be a training event about quality control.
- The production process should be improved.
- The majority of production is above 3,000 meters above sea level.
- Including more people in the platforms depends on the potato market
- Implementing more farmer field schools and training more producers creates expectations.
- People need to see the potato chain from a market perspective.

- There are people organized and others that are not; somebody should undertake a deeper analysis of market access.
- Products should be stored to negotiate at more appropriate times.

Group 4: PUBLIC INSTITUTIONS

Barriers that impede the insertion of farmers into the market:

- Lack of organization, collaboration and cooperation
- Lack of information
- Lack of production planning
- Crop zoning, which depends on farmers.
- Poor post-harvest management; the majority of farmers have poor quality.
- There are no local agricultural policies
- Standardization of weights, sizes, and packaging at the national level.
- Lack of commercialization/business norms
- Absence of varieties in demand by industry
- Bureaucracy in financial processes to assure agreements and projects.
- Lack of other products to enter into markets
- No value added to potatoes
- Lack of systematic focus
- Lack of empowerment of the process by public institutions

Factors that facilitate the insertion of farmers into the market:

- There are organized and legalized groups: CONPAPA and the coordination platforms.
- Planting and harvesting plans
- Better prices
- Farmer training
- Inter-institutional cooperation
- Use of public information

Impacts on the environment and people:

On the environment:

- Decreased pesticide use
- Decrease in potato biodiversity: farmers only work with the Fripapa variety
- Overuse and desertification of the soil: monoculture

On people:

- Improved income for the participating farmers
- Farmer participation – as owners – in the potato business
- Training of local farmer promoters

Contributions to the discussion:

- Concrete experience looking at the results that allow farmers to learn and improve their production processes.

- People should focus on the generation of knowledge, which will strengthen these processes.

Annex II - Table for sampling frame Ecuador

Zona	Cantón	Parroquia	Comunidad	altura msnm	Coordenada	Dsitancia de la ciudad (km)		Características del sistema de producción	Tamaño de la finca	Factores limitantes en producción de papa	Período de producción de papa	Mercado de papa	# de familias en la zona	# de agricultores en la entrega a la Plataforma	Producción anual y venta anual de papa	Entrega promedio por agricultores a través de la Plataforma
Quero	**Quero**	La Matriz	H San Francisco	3532	Lon=78°34´07´´O Lat=01:26´39´´S	Ambato	25	papa/zanahoria/cebada	1 cuadra	semi, suelo,seq, hel	octubre-enero	comerciante	110	25		20 qq
Quero	**Quero**	La Matriz	H Santa Anita	3362	Lon=78°35´34´´O Lat=01:26´24´´S	Ambato	25	papa/arveja	2 cuadras	semi, suelo,seq, hel	octubre-enero	comerciante	180	33		no vende
Quero	**Quero**	La Matriz	H San Luis	3499	Lon=78°35´45´´O Lat=01:27´30´´S	Ambato	28	papa/pasto/zabahoria	1 ha	semi, suelo,seq, hel	octubre-enero	puesto	220	71		10 qq
Quero	**Quero**	La Matriz	H San José			Ambato	20	papa/arveja/cebada	1 cuadra	semi, suelo,seq, hel	octubre-enero	puesto		12		no vende
Quero	**Quero**	La Matriz	H San Nicolás			Ambato	23	papa/pasto	1,5 cuadra	suelo, semi, sequia	octubre-enero	mayorista		18		no vende
Quero	**Quero**	La Matriz	Saushi	3266	Lon=78°35´14´´O Lat=01:23´47´´S	Ambato	18	papa/arveja/zana/haba	2 cuadras	suelo, GB, semilla, helada	todo el año	mayorista	200	37		10 qq
Quero	**Quero**	La Matriz	Puñachizac	3493	Lon=78°35´03´´O Lat=01:24´05´´S	Ambato	19	papa/arveja/zana/haba	3 cuadras	semilla, lancha, GB	todo el año	Quero	400	10		no vende
Quero	**Quero**	La Matriz	J El Placer	3243	Lon=78°35´27´´O Lat=01:25´29´´S	Ambato	20	papa/arveja	1/2 cuadra	suelo, sem, GB, seq, helada	octubre-enero	Ambato	140	11		no vende
Quero	**Quero**	La Matriz	Jaloa La Playa	3319	Lon=78°34´40´´O Lat=01:26´20´´S	Ambato	23	papa/zanahoria/arveja	2 cuadras	semi, suelo,seq, hel	octubre-enero	Plataforma	120	22		no vende
Quero	**Quero**	La Matriz	La Calera			Ambato	35	papa/pasto/haba		semi, suelo,seq, hel	octubre-enero	consumidos	80	21		10 qq

Annex II - Table for sampling frame Ecuador

Zona	Cantón	Parroquia	Comunidad	altura (msnm)	Coordenada	Dsitancia de la ciudad (km)		Características del sistema de producción	Tamaño de la finca	Factores limitantes en producción de papa	Período de producción de papa	Mercado de papa
Chimborazo	Guamote	Cebadas	Cebadas	300	Lon= 78°38´58"O Lat=1°55´3´´S	Riobamba	101	pastos, papa, maí	5 ha		todo el año	
Chimborazo	Guamote	Cebadas	Ichubamba									
Chimborazo	Guamote	Palmira	Atapos	3495	Lon= 78°42´68"O Lat=2°5´59´´S	Riobamba	71	papas, habas, ceb, trigo, centeno, ocas, mashua	12 ha		todo el año, febrero, sept	
Chimborazo	Guamote	Palmira	Capilla Urco	3200	Lon= 78°47´25"O Lat=2°6´58´´S	Riobamba	74	cebada, chocho, papa, maíz, alfalfa	1 ha		enero, marzo, octubre	
Chimborazo	Alausi	Tixdu	Curiquinga									
Chimborazo	Riobamba	Licto	Molobog	2800	Lon= 78°36´49"O Lat=1°46´52´´S	Riobamba	17.5	papa, alfalfa, arveja, maíz, zanahoria, ajo	1.5 ha		todo el año, marzo	
Chimborazo	Riobamba	Licto	Sul Sul	2900	Lon= 78°37´93"O Lat=1°47´60´´S	Riobamba	25	papa, alfalfa, zanahoria, arveja, maíz	1.8 ha		todo el año	
Chimborazo	Riobamba	San Luis	Corazón de Jesús									
Chimborazo	Riobamba	Quimiag	El Toldo									
Chimborazo	Riobamba	Quimiag	Guntuz									
Chimborazo	Riobamba	Quimiag	El Cortijo									
Chimborazo	Guano	San Andrés	Sta Lucía	3500	Lon= 78°45´27"O Lat=1°32´06´´S	Riobamba	26	papa, pastos, cebada, habas	5 ha		noviem, diciem, enero, febrero	
Chimborazo	Guano	San Andrés	Silveria									
Chimborazo	Guano	San Andrés	Tunsalao	2734	Lon= 78°44´14"O Lat=1°34´67´´S	Riobamba	20		1.5 ha			
Chimborazo	Guano	Sta Fé de Galan	Sta Fé de Galan									
Chimborazo	Guano	Sta Fé de Galan	Calhuaji									
Chimborazo	Guano	Ilapo	Pusmiag									

Annex II - Table for sampling frame Ecuador

Zona	Cantón	Parroquia	Comunidad	altura (msnm)	Coordenada	Dsitancia de la ciudad (km)		Sistema de Producción	Tamaño de la finca	Factores limitantes en producción de papa	Período de producción de papa	Mercado de papa	# de familias en la zona	# de agricultores en la entrega a la Plataforma	Producción anual y venta anual de papa	Entrega promedio por agricultores a través de la Plataforma
Tungurahua	Ambato	Juan B Vela	Pataló Alto											31		
Tungurahua	Ambato	Juan B Vela	San Luis			Ambato	2	papa, zanahoria, alfalfa, avena	2 cuadras	tizón, sequía, helada	febrero, mayo, dic, enero	mayorista, plataforma	200	15		15 a 18 qq
Tungurahua	Ambato	Pilahuin	Yatzaputzán			Pilahuín	1	papa, haba, pastos, ajo, mellocos, oca	7 ha	tizón, heladas, gudano, erwinia	mayo, agosto	mayorista, plataforma	200	25		50 qq
Tungurahua	Ambato	Pilahuin	Pungaloma			Ambato	3	papa, pasto, habas, ocas, mellocos	10 ha	tizón, heladas	mayo, agosto	mayorista, plataforma	150	20		50 qq
Tungurahua	Ambato	Pilahuin	Tamboloma			Ambato	1	papa, pasto, ajo, h	4 ha	tizón, gusano, heladas, granizo, erwinia	febrero-mayo, diciembre-enero	mayorista, plataforma	3000	50		15 qq
Tungurahua	Ambato	Pilahuin	El Lindero											53		
Tungurahua	Ambato	Pilahuin	Chibuleo													
Tungurahua	Ambato	Pilahuin	Lloscapamba													
Tungurahua	Ambato	Pilahuin	Llangahua											24		
Tungurahua	Píllaro	San Andrés	La lindera			Píllaro	1	maíz, fréjol, morocho, papa, pasto, hortalizas	1,5 cuadras	tizón, gusano, otras plagas (pulgilla, trips, poloilla)	todo el año	mayorista, plataforma, Salcedo y Píllaro	78	12		10 a 15 qq
Tungurahua	Píllaro	San Andrés	Huapante Chico	2944	Lon= 78°38´50" O Lat= 1°06´08"	Ambato	2	maíz, pasto, papa	0,5 cuadras	tizón, gusano, plagas (trips, polilla)	todo el año	mayorista, plataforma, Salcedo y Píllaro	600	24		20 qq
Tungurahua	Píllaro	San Andrés	Huapante Grande	3072	Lon= 78°32´06" O Lat= 1°05´18"											
Tungurahua	Píllaro	San Andrés	Yatchil	3047	Lon= 78°31´55" O Lat= 1°06´23"	Píllaro	2	pastos, papas, hortalizas, maíz	1,5 ha	tizón, gusano, sequía	todo el año	Píllaro, Salcedo, mayorista, plataforma	200	18		10 qq
Tungurahua	Píllaro	San Andrés	La Victoria	3008	Lon= 78°31´51" O Lat= 1°07´16"											

Annex III – Work plan for the next period

What	Who	When
Meetings and coordination with platforms	P. Espinosa with support from FAO-Rep	October
Finalize annotated bibliography, including database of available documentation *	M.Meijer/R.Cavatassi	September
Draft report and proposed methodology for the value chain analysis (Madelon with support of Alvaro Paz for and Javier Jimenez del INIAP) include costs feedback loops (similar to program that Alvaro Paz has already done for milk)	M. Meijer	September
Design household survey: sample frame, hypotheses, key variables	R. Cavatassi, P. Winters, P. Espinosa	October
Select sample, verify matching, and pre-test household draft survey instrument	R. Cavatassi	November
Focus groups and value chain analysis	M. Meijer	November
Finalization and report of market map and value chain analysis	M. Meijer	Nov /Dec
Finalize household questionnaire	R. Cavatassi, P. Winters, P. Espinosa	December, January
Training and trial of the questionnaires, when Romina and Paul are in Ecuador (at least 2 weeks)	R. Cavatassi, P. Winters, P. Espinosa	Second half January 2007
Survey-implementation and data-entry	P. Espinosa	January-March 2007
Data analysis	R. Cavatassi, P. Winters	April 2007
First draft paper on data analysis	R. Cavatassi, P. Winters, P. Espinosa, G. Thiele	June 2007
Stakeholder workshops for presenting results in Quito and Riobamba	All	June 2007
Papers	All	August 2007