

SIERRA PRODUCTIVA: LEADERSHIP DEVELOPMENT AND  
KNOWLEDGE SHARING FOR COMMUNITY CAPACITY DEVELOPMENT:  
A CASE STUDY OF ENTREPRENEURIAL INDIGENOUS PEASANTS IN  
CUZCO, PERU

By

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## DECLARATION

I, hereby declare that, the contents of this work are the results of my own research, conducted under the supervision of Professor Miyosi Koichi, and that every source of information utilized in this paper has been properly acknowledged and referenced. Therefore, I accept full responsibility for the contents of this work.



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## LIST OF ACRONYMS AND TERMS

BBVAC S.A.: Bank Bilbao Vizcaya Argentaria Colombia S.A.

CAF: Development Bank of Latin America

CCP: Confederation of Peasants of Peru

EEC: European Economic Community

FDCC: Federation of Peasants of the Department of Cuzco

FOS: Fonds voor Ontwikkelingssamenwerking<sup>1</sup>.

HDI: Human Development Index

HOI: Human Opportunity Index

Intermon OXFAM: Oxford Committee for Famine Relief, Spain

IICD: International Institute for Communication and Development Holland

IAA: Institute for the Agrarian Alternative

IADB: Inter American Development Bank

ICCO: Interchurch Organization for Development Cooperation

MCJM: Micro-watershed of Jabon Mayo

MINCETUR: Ministry of Foreign Trade and Tourism

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<sup>1</sup> FOS is a Belgium Non-Governmental Organization.

NGO: Non-Governmental Organization

OXFAM America: Oxford Committee for Famine Relief America

PIC I: Comprehensive Canas Project I

PIC II: Comprehensive Canas Project II

IPIP: Research Institute for the Productivity

PRODERM: Project for the Rural Development in Micro regions. Funding by  
Holland, EEC and Peruvian Government

PUCP: Catholic University of Peru

SOMUC: Secretary of the Woman Peasant of Cuzco

WB: World Bank

## ABSTRACT

The underdevelopment of rural areas and its inability to compete with urban areas is a common situation in both developed and developing countries. The Peruvian Sierra is not an exception. After the land reform at the beginning of the 1980's, the land was distributed among peasants, who were unable to make a living from it. It is hard to imagine, especially in the Sierra, a way of achieving development under such circumstances: lack of basic infrastructure, services and alternative sources of income beyond agriculture, poor education and small parcels located 4000 meters above sea level with water scarcity. However, living conditions of rural dwellers of the Peruvian Sierra have improved considerably since the land reform. Since that time, the Institute for the Agrarian Alternative has implemented several development strategies, mainly related to leadership and human resource development.

The alternative rural development approach of community capacity building for rural development is a holistic approach that contemplates not only economic and formal aspects of life but also its social, political and informal aspects. According to this approach, the more capable a community is, the more sophisticated, well-being oriented the policy structure that this community can introduce. Moreover, the community capacity can be further developed by stimulating its strategic components: human resources, leadership, organization and networking (Miyoshi & Stenning, 2008).

This paper explores the case of community capacity development in the Peruvian Sierra through IAA's developmental strategies. The main question that guides this research is: *How do the developmental strategies followed in the Peruvian Sierra contribute to overcoming rural underdevelopment through community capacity building?*

This paper seeks to interpret a culturally significant phenomenon: the development of the Peruvian sierra, while giving voice to its protagonists. The strategy of inquiry, although mainly narrative, is a combination of approaches. Regarding the type of collected data, most of it is qualitative, although not exclusively.

The argument is that each of the developmental strategies followed in the MCJM by the IAA contribute to the community capacity by stimulating the strategic components allowing the introduction of more complex, well being oriented policy structure.

The conclusion of this work is that the stimulation of strategic components of the community capacity, especially leadership and human resource development, lead to the sophistication of the policy structure of the target communities, with the consequent improvement in living conditions of the rural dwellers.

Finally, the significance of this research consists of being the first systematic research about the development of the Peruvian Sierra from a community capacity building perspective.



# Chapter 1: INTRODUCTION

## 1.1 RESEARCH PROBLEM

The underdevelopment of rural areas and their inability to compete with urban areas is a common situation in both developed and developing countries. The Peruvian Sierra is not an exception. The problem here is multifaceted. There is a lack of basic infrastructure and alternative sources of income beyond agriculture, add to this the hardship of the geography (the Sierra is over 4000 meters above sea level and it only rains three months per year) and you have the complete picture. Needless to say that there is no running water and sanitation is lacking.

Its peasants are impoverished spiritually and materially. Until the beginning of the 80's, the hacienda was the land tenure system of Peru. In this system, peasants living conditions were similar to slavery: they didn't own the land; the product of their work was for the landlord and they did not receive a salary for their work. Furthermore, they would attend school if the landlord decided to allow them.

After land reform, the land was distributed among peasants, but they were unable to make a living out of it. The parcels they received were less than two hectare, the altitude was not a minor issue, water was scarce and they didn't have the required knowledge to make the best out of this situation. Moving to urban areas is not a good option for these people. In their homes, they are peasants that belong to a community; when they move to the cities most of the time they end up living

in a shantytown, doing some sort of informal work. They don't have the qualifications required for a quality professional integration in the cities. Besides, in the city, they most likely will be seen as “cholos” a pejorative name for indigenous people.

## 1.2 RESEARCH QUESTIONS:

In order to address the problem of rural underdevelopment and the effects of the following developmental strategies on the community capacity in the Peruvian Sierra the following research question has been posed:

*How do the developmental strategies followed in the Peruvian Sierra contribute to overcoming rural underdevelopment through community capacity building?*

To answer the main question, the following sub-questions have been posed:

- Which developmental strategies are followed in the Peruvian Sierra?
- How do these developmental strategies stimulate the strategic components of the community capacity?
- How do these developmental strategies affect the attributes of the community capacity?

Chapter 5 aims to answer the above questions in terms of strategies, while chapter 6 shows the effects of developmental strategies in a particular community.

### 1.3 RESEARCH OBJECTIVES

The main objective of this research is to clarify how the strategies followed in the Peruvian Sierra contribute to overcoming its rural underdevelopment. To achieve this objective is necessary to achieve minor but related objectives such as:

- To identify developmental strategies followed in the Peruvian Sierra.
- To identify the changes in the strategic components of the community capacity that have arisen from the developmental strategies followed in the Peruvian Sierra.
- To identify the changes in the community capacity attributes that arise from the developmental strategies followed in the Peruvian Sierra.

### 1.4 SIGNIFICANCE OF THE RESEARCH

Although the case of Sierra Productiva hasn't been systematically studied yet, it seems to be a successful case of rural development through community capacity building. Therefore, a systematic study will provide not only an assessment of the experience but also valuable lessons for the field of rural development and capacity building.

## 1.5 SCOPE AND LIMITATIONS OF THE RESEARCH

Although the same developmental strategies were introduced in different departments of the Peruvian Sierra, these experiences can be grouped into two types: those with a strong guidance of the Institute for the Agrarian Alternative (IAA) and those with minimal intervention of this organization, like the experience in the department of Huancavelica, where there are no offices of the aforementioned organization.

This research was conducted in the department of Cuyo, where the IAA has a strong presence. Therefore, the limitation of this research is not covering the introduction of these developmental strategies without strong guidance of the IAA.

## 1.6 STRUCTURE OF THE THESIS

This thesis is organized as follows: after the introduction the second chapter contains the Literature Review. In this chapter, all the concepts utilized in this research are detailed. In the third chapter, the methodological aspects of this work are explained. The explanation includes the followed research paradigm, the strategy of enquiry and a description of the research process. Finally, the data collection methods are detailed together with the limitations of this research.

Chapter four contains the necessary background information while chapters five and six contain data. The goal of these chapters is to answer the research questions posed in the introduction.

The fourth chapter has two sections: the first one contains a description of general aspects of Peru as well as descriptions of the Micro-watershed of Jabon Mayo, hereafter MCJM, the place where Sierra Productiva, a developmental strategy was initiated, the second section is an explanation of Sierra Productiva. Besides a general explanation, the different stages of the project are explained. Briefly speaking, three stages can be identified: foundations, validation and replication. “Foundations” is the stage when the events that led to what today is known as Sierra Productiva took place. “Validation” is the stage of development where consolidation of technologies and knowledge transmission strategy takes place. Finally, the “Replication” stage is when Sierra Productiva is implemented beyond the MCJM and the *yachachics* (peasant community leaders) travel throughout different departments of Peru sharing the knowledge needed for implementation. This chapter also includes a description of the different technologies that entail Sierra Productiva.

The fifth chapter describes the different developmental strategies followed by the IAA in the MCJM. At the end of each section the different strategies are framed into a community capacity building model, in an attempt to find out how these strategies contribute to building capacity. The named strategies are: the Peasant School -a leadership development project- training by contests -an attempt to motivate peasants to introduce different productive practices and technologies-

training “yachachics” and, finally, training of peasant groups according to lines of production.

The sixth chapter is a small case study of the dairy milk producers of the community of Colliri, one of the communities of MCJM. Its policy structure and community capacity attributes and strategic component are clarified in an attempt to assess the impact of the developmental strategies on the development of the community capacity.

Finally, chapter seven is dedicated to the conclusions of this research.

## Chapter 2: LITERATURE REVIEW

The purpose of this chapter is to describe the main concepts utilized in this research and its discussions. I will start by explaining the reasons why an alternative approach for rural development is needed along with the reasons for community capacity. Next, the concept of community capacity will be detailed provided its relevance in this research. Related to this concept are the concepts of community and evaluation. Other core concepts of this research that are explained in this chapter are knowledge and leadership.

### 2.1 COMMUNITY CAPACITY

#### 2.1.1 THE NEED OF AN ALTERNATIVE APPROACH AND THE REASONS FOR COMMUNITY CAPACITY

The rural areas of underdeveloped and developing countries alike lag behind urban areas and find it very difficult to compete. The traditional approach for assessing the development of both, urban and rural areas is only focused on the economical aspects of life, such as markets and income generation. However, ‘... development is people’s behaviours and activities with each case uniquely depend on the circumstances and context of the particular location’ (Miyoshi, 2012c, p. 40). In other words, the traditional approach is missing all the social, political and informal aspects of life that also contribute to the well being of the rural dwellers. Furthermore, this approach has resulted useless to better living conditions in rural

areas. Therefore, an alternative approach that considers not only the economical but also the social, political and informal aspects of life is needed (Miyoshi & Stenning, 2008).

This alternative development approach

‘... must be granted in reality and must have a holistic and, practical and operationable perspective to ensure benefits to the people of rural community. ... In response to this requirement I provide an alternative development approach focusing on community capacity development that benefits rural communities. This approach seeks a dual function aiming at developing community capacity, and introducing and implementing a higher value added and better well-being policy structure, which consists of economic, social and political activities to change the life of the community’s population’ (Miyoshi, 2012c, p. 42).

Community capacity is defined by Chaskin et al. (2001, p. 7) as

‘... the interaction of human capital, organizational resources, and social capital existing within a given community that can be leverage to solve collective problems and improve or maintain the well-being of that community. It may operate through informal social processes and/or organized efforts by individuals, organizations, and social networks that exist among them and between them and the larger systems of which the community is a part. ... In simple words, community capacity is what makes a community work’.



For Miyoshi and Stenning (2008), community capacity is not only what makes a community “work” but also is what allows the introduction of more complex and sophisticated policy structure. In this approach, there is a virtuous circle between the development of community capacity and the complexity and sophistication of the policy structure. It is this complexity and sophistication that in turn improves the welfare of the community.

#### 2.1.2 COMMUNITY CAPACITY, AN OPERATIONAL DEFINITION

According to the above-mentioned authors, the concept of community capacity can be divided into features, strategies and functions. The features are: sense of community, commitment, ability to set and achieve objectives and ability to recognize and access to resources. The strategies to boost community capacity are related to: human resources, leadership, organization and network development. Finally, the functions are: planning, implementation and evaluation (Chaskin et al., 2001; Miyoshi & Stenning, 2008; Miyoshi, 2012).

##### 2.1.2.1 THE FEATURES

The level of community capacity is a function of its attributes. In other words, the importance of these attributes is to be the foundation for action. Finally, different levels of sense of community, commitment, ability to set and achieve objectives and ability to recognize and access to resources may be found in every community (Chaskin et al., 2001; Miyoshi & Stenning, 2008; Miyoshi, 2012).

Hereafter, is a brief description of the features of community capacity.

#### 2.1.2.1.1 SENSE OF COMMUNITY

Sense of community is the degree of connection among members of a community and is related to shared values, norms and future vision. If this sense of belonging grows, the capacity of the community grows as well.

#### 2.1.2.1.2 COMMITMENT

Commitment is the responsibility for the destiny of the community and it has two aspects: to recognize oneself as a stakeholder and to have the willpower to participate as a stakeholder. In other words, if community members are aware of their roles, and realize the values, norms and visions of the community, the capacity of the latter grows.

#### 2.1.2.1.3 ABILITY TO SET AND ACHIEVE OBJECTIVES

Ability to set and achieve objectives is the capability to set goals, translate values, norms and visions into actions, and ultimately achieve goals to enhance community capacity.

#### 2.1.2.1.4 ABILITY TO RECOGNIZE AND ACCESS TO RESOURCES

Resources might be economic, natural, organizational, political, etc. and they exist in every community. If a community is able to recognize and access them, its capacity is further developed.

#### 2.1.2.2 THE STRATEGIES

In the alternative approach for rural development, the strategies to foster community capacity are: to develop human resources, to promote leadership, to set and/or enhance community organization and to encourage networks, within

and outside the community. The implementation of activities that changes the strategic elements leads to changes in the community capacity. It is worth noting that, although the strategic elements are intrinsic to the community, they may be externally influenced (Stenning & Miyoshi, 2012a).

#### 2.1.2.3 FUNCTIONS OF COMMUNITY CAPACITY

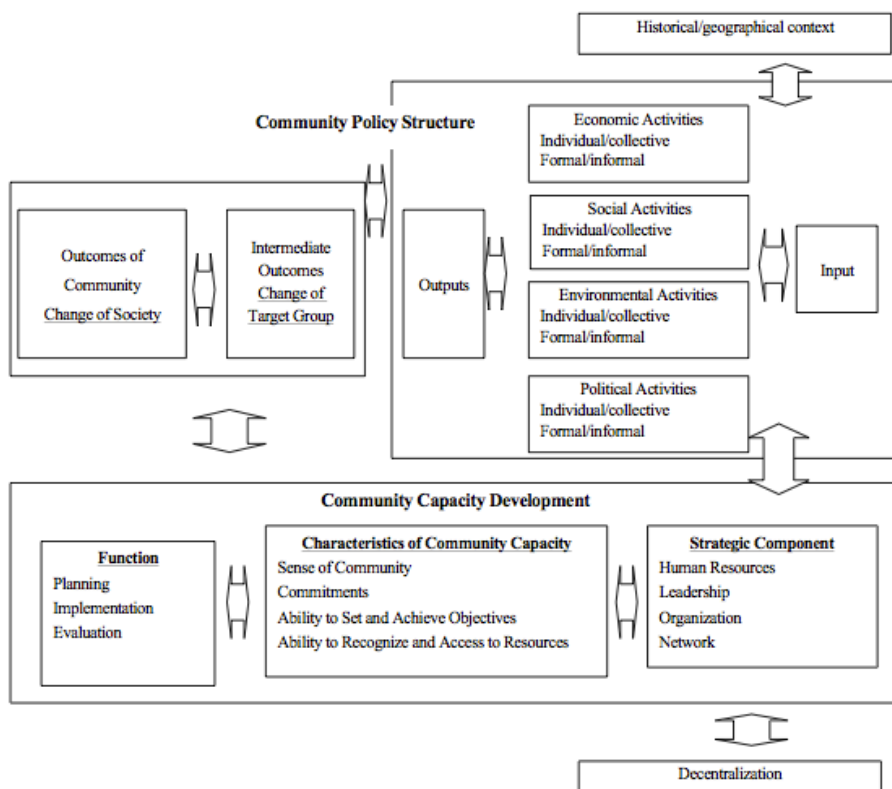
The aforementioned community characteristics become community capacity once they are converted into functions. In other words, the attributes of the community become capacity when planning, implementing and evaluating the community policy structure is a community activity.

The community policy structure is the connection between means and ends, and its aim is to reach the envisioned future for the community. Although not always explicit, every community has a policy structure. ‘The planning, implementation and evaluation of community activities can be conceptualized as a collective, systematic, and strategic policy structure, which is delivered through the enhancement of community capacity’ (Stenning & Miyoshi, 2012a, p. 54).

All the previously mentioned aspects of the definition of Community Capacity, as well as its interactions, are brought together in the model of Community Capacity Development and Community Policy Structure (Stenning & Miyoshi, 2007). According to the model, there is a virtuous circle between community capacity and community policy structure on one hand, and between these and the outcomes on the other. To better understand the model, it is worth mentioning that community policy structure refers to all the activities (economical, social and political) conducted by a community, its inputs, and the outputs that come from

performing these activities. On the other hand, the outcomes are changes in the society, beginning with the changes of the target group, as a consequence of performing activities (Miyoshi & Stenning, 2008). Figure 2-1 illustrates Community Capacity Development and Policy Structure Model.

FIGURE 2-1 COMMUNITY CAPACITY DEVELOPMENT AND POLICY STRUCTURE MODEL



Data Source: Miyoshi, 2011

## 2.2 COMMUNITY

Given the multiplicity of definitions of community, it is worth clarifying the definition of community behind the model of community capacity development and policy structure. Community ‘... is a relative aggregation constructed by

individuals, groups and organizations acknowledged by a specific area, generally defined by administrative boundaries, and within this boundary, these individuals, groups and organizations recognize themselves as being a member of the community' (Miyoshi, 2012c, p. 43). Within these boundaries, people share circumstances, lifestyles, common topics of conversation and it is the participation in this common life that entitles membership (Mac Iver, 1970; Wenger, 1998).

### 2.3 EVALUATION

Evaluation is defined by Miyoshi 'as the organized assessment of the implementation and effects of various policies, programs and projects' (2012b, p. 67).

The main purposes of evaluation are learning and accountability, and given the overlap among them it is necessary to clarify the goals of an evaluation before its implementation. In other words, before implementing the evaluation we should have the answers to these questions: What do we want to know? Who is going to utilize the results of the evaluation and for what purpose?

This, in turn, makes it more straightforward to define the framework of the evaluation: subject, questions and method (Miyoshi, 2012b; Miyoshi & Stenning, 2008).

### 2.3.1 WHY EVALUATE COMMUNITY CAPACITY?

The importance of evaluation -one of the functions of community capacity- is that, together with planning, it brings the possibility of improvement through the utilization of its results. With standard-based tools, an analysis of the situation can be done and the results of this analysis might be utilized to guide the tasks and activities necessary to achieve goals.

‘In the context of community it is necessary to clarify the subject of evaluation and planning by conceptualizing people’s daily lives and the activities of organizations that are part of the community. This conceptualization process encompasses the community policy structure, in addition to establishing and examining what must be clarified to create a better future for the community’ (Miyoshi, 2012a, p. 78).

### 2.3.2 PLANNING AN EVALUATION OF COMMUNITY CAPACITY

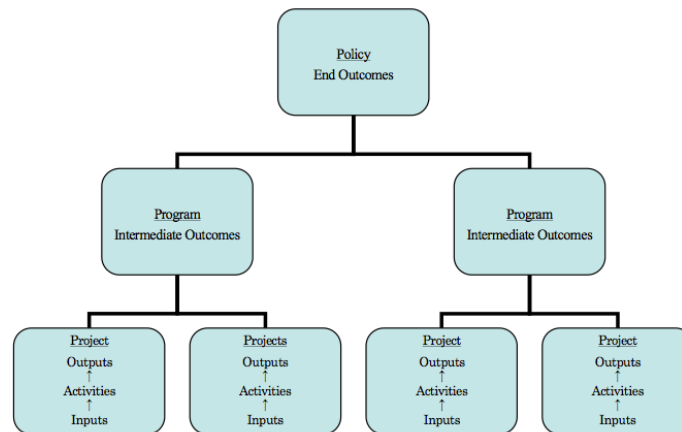
To conduct an evaluation of the community capacity, the following aspects should be defined:

- The subject of evaluation, meaning to clarify the policy structure.
- Questions, in other words, we should define what we want to know.
- Methods for conducting evaluation, in other words, how are we going to find out what we want to know?

### 2.3.3 THE SUBJECT OF THE EVALUATION

The policy structure, the subject of evaluation, illustrates the relationship between means and objectives, the causes and effects between end outcomes and policies, programs and projects. Therefore, to clarify the policy structure it is necessary to conceptualize the policies, programs and projects. Hereafter, Figure 2-2 illustrates the Policy Structure.

FIGURE 2-2 POLICY STRUCTURE



Source: Miyoshi, 2012b, p. 69

A policy is an intervention whose end outcomes are changes in the society. These end outcomes, are consequence of the changes in the target groups, the intermediate outcomes of the programs.

In the same way that a policy is a sum of programs, a program is a sum of projects. In turn, a project encompasses the following components:

- Outputs: the goods and services resulting from activities.
- Activities: the actions taken to produce outputs.

- Inputs: the needed resources to conduct the activities that in turn will lead to the outputs.

#### 2.3.4 QUESTIONS

Defining the questions entails defining what we want to know, or the purpose of the evaluation. One of the purposes, in this case, is to evaluate the community capacity; therefore, the policy structure of the community should be clarified. Another purpose is to characterize the features of the community capacity of the community under study. In summary, the desired results of the evaluation are a clarification of the policy structure and a richer understanding of the attributes of the evaluated community.

### 2.4 KNOWLEDGE

Knowledge might be defined as ‘... a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information. It originates and is applied in the minds of knowers. In organizations, it often becomes embedded not only in documents or repositories, but also in organizational routines, processes, practices, and norms’ (Davenport & Prusak, 1998, p. 5).

Other knowledge related terms, like data and information, tend to generate confusion. Data becomes information when it has meaning. In turn, humans use information to create knowledge by doing knowledge-creating activities such as:



comparing situational information, analysing the implications of information -for making decisions and actions- and making connections. Finally, conversations are also a knowledge creation activity. It is through experiences that knowledge is developed, moreover, knowledge can be found only in individuals (Davenport & Prusak, 1998).

#### 2.4.1 KNOWLEDGE ATTRIBUTES AND DIMENSIONS

Knowledge not only has several attributes but also is multidimensional. Two of the most important dimensions are: type and mode. The type is related to the nature of the knowledge while mode is related to the idea that knowledge is the outcome of the process of interpretation and cognitive construction.

Type of knowledge refers to featuring defining characteristics. There are three types of knowledge: descriptive (know what), procedural (know how) and reasoning (know why). All of them can not only be created but also utilized in the creation of knowledge. When it comes to mode, knowledge might be: tacit, explicit or cultural; the latter associated with knowledge in organizations (Holsapple, 2003).

#### 2.4.2 KNOWLEDGE MANAGEMENT

Knowledge management matters because it makes the right knowledge available to the right person, in the right way, and at the right cost (Davenport & Prusak, 1998). For knowledge management to prosper, organizations must ensure the existence of roles in charge of capturing, distributing and using knowledge. ‘Thus, organizations need people who will extract knowledge from those who have it,

put it in structured form, and maintain or refine it over time’ (Davenport & Prusak, 1998, p. 110). Table 2-1 details the principles of knowledge management.

TABLE 2-1 KNOWLEDGE MANAGEMENT PRINCIPLES

Knowledge originates and resides in people’s mind.
Knowledge sharing requires trust.
Technology enables new knowledge behaviours.
Knowledge sharing must be encouraged and rewarded.
Management support and resources are essential.
Knowledge initiatives should begin with a pilot program.
Quantitative and qualitative measurements are needed to evaluate the initiative.
Knowledge is creative and should be encouraged to develop in unexpected ways.

Data Source: Davenport & Prusak, 1998, p. 24

### 2.4.3 KNOWLEDGE MANAGEMENT ACTIVITIES

The various knowledge management activities identified in the literature by different authors are listed in Table 2-2 below:

TABLE 2-2 SUMMARY OF KNOWLEDGE MANAGEMENT ACTIVITIES IDENTIFIED IN THE LITERATURE

Author	Knowledge Management Activities
Alavi, 1997	Acquisition (knowledge creation and content development); Indexing; Filtering; Linking involves screening, classification, cataloguing, integrating, and interconnecting internal and external resources); Distributing (packaging and delivery of knowledge in the form of Web pages); Application (using knowledge).
Arthur Anderson and	1. Share 2. Create 3. Identify 4. Collect 5. Adapt 6. Organize 7.

APOC, 1996	Apply.
Choo, 1996	Sensemaking (includes “information interpretation”); Knowledge creation (includes “information transformation”); Decision-making (includes “information processing”).
Hosapple and Whinston, 1987	1. Procure 2. Organize 3. Store 4. Maintain 5. Analyze 6. Create; 7. Present 8. Distribute 9. Apply.
Leonard-Barton, 1995	Shared and creative problem solving; Importing and absorbing technological knowledge from the outside of the firm; Experimenting prototyping; Implementing and integrating new methodologies and tools.
Nonaka, 1996	Socialize (convert tacit knowledge to tacit knowledge); Internalize (convert explicit knowledge to tacit knowledge); Combine (convert explicit knowledge to explicit knowledge); Externalize (convert tacit knowledge to explicit knowledge).
Szulanski, 1996	Initiation (recognize knowledge need and satisfy that need); Implementation (knowledge transfer takes place); Ramp-up (use the transferred knowledge); Integration (internalize the knowledge).
Van der Spek and Spijkervet, 1997	In the Act Process 1. Develop 2. Distribute 3. Combine 4. Hold
Wiig, 1993	1. Creation 2. Manifestation 3. Use 4. Transfer

Source: Holsapple, 2004, p 103-104

Among all the knowledge management activities identified in the literature, generation, creation, sharing and transfer appear as the most named and they will be explained hereafter.

#### 2.4.3.1 KNOWLEDGE GENERATION

According to (Davenport & Prusak, 1998) some of the ways for generating knowledge are: acquisition, dedicated resources, adaptation and knowledge networking.

Acquiring knowledge might be done by hiring knowledgeable people or by buying an organization. Knowledge doesn't have to be new knowledge but new for the organization.

Dedicating resources to the generation of knowledge usually takes the shape of setting up groups or units for that purpose. After being created, this knowledge should be transferred but this is not always easy to accomplish. A common barrier in the transfer of knowledge is language: creators and users of knowledge do not necessarily speak the same language.

Crisis and periods of stress incite adaptation, leading to generation of new knowledge. Networks, whether they are informal and self-organizing or formal and organized within organizations also generate knowledge.

The abovementioned knowledge generation activities need time and place to occur. The acknowledgement of the importance of knowledge for an organization and the understanding that knowledge can be nurtured are essential for organizations to succeed.

#### 2.4.3.2 KNOWLEDGE CREATION

Knowledge creation can boost the success and economic well being of an organization. It might happen by chance, or as a consequence of an intentional act. This is the case of individuals or organizations reacting to rectify a lack of knowledge. Knowledge of any type or mode can be used to produce new knowledge either through knowledge discovery or through knowledge derivation. The former has to do with finding new knowledge, the latter with the application

of procedures to reach new conclusions from existing knowledge. According to Holsapple (2003, p. 373) ‘... important characteristics for knowledge creation are having processes that allow individuals to share skills and knowledge, and fostering a culture that values knowledge building and sharing.’

#### 2.4.3.3 KNOWLEDGE SHARING OR TRANSFER

The aim of transferring knowledge is to enhance the capabilities of a person, a community or an organization. The transference is made up of two parts: the transmission and the absorption. Meaning that it is not enough for the transference of knowledge to be available for the target but it also has to be utilized, put it in action.

Nonaka and Takeuchi (cited in Holsapple 2003) describe four processes through which knowledge is shared: socialization, externalization, combination and internalization. In the process of socialization, the tacit knowledge of an individual becomes the tacit knowledge of another through personal exchanges. In externalization, tacit knowledge became explicit. In combination, explicit knowledge becomes another type of explicit knowledge. Lastly, internalization is the process through which explicit knowledge became tacit.

##### 2.4.3.3.1 STRATEGIES FOR KNOWLEDGE TRANSFER

There is agreement in the literature that **face-to-face interactions** are among the best channels for knowledge transfer. When talking among each other, knowledge holders discover what they know and share it. Moreover, knowledge is created.

Beyond the transference of knowledge, Stenning and Miyoshi (Stenning & Miyoshi, 2012b, p. 168) establish that ‘Networking that builds bonding social

capital promotes knowledge sharing through increased face-to-face interactions and communication between community members as well as knowledge creation arising from the creative synergies of such interactions’.

Transferring can be also done through **apprenticeship or mentoring** and in this case, tacit knowledge is captured.

**Narratives** are also a strategy for knowledge transfer. People learn from stories. ‘The value of narratives: Human beings learn best from stories ... “people think narratively rather than argumentatively or paradigmatically”’ (Davenport & Prusak, 1998, p. 81). ‘A good story is often the best way to convey meaningful knowledge’ (Davenport & Prusak, 1998, p. 82).

Another strategy for sharing knowledge is **demonstration**. As popular wisdom says, “one picture is worth more than a thousand words”, when it comes to knowledge transfer, seeing is believing ‘... they may have felt that seeing is believing: only an actual demonstration of the new technique and its advantages was likely to convince them. Why should a few sheets of paper that come from the other side of the world persuade them there’s a better way to do what they’ve been doing for years’ (Davenport & Prusak, 1998, p. 99).

Finally, and regarding knowledge transfer or sharing, it is worth mentioning that the status of the knower matters, since one of the main criteria for judging knowledge is who is delivering it.

#### 2.4.3.3.2 KNOWLEDGE TRANSFER INHIBITORS

Some of the main factors that inhibit the transfer of knowledge are: lack of trust, differences in culture, vocabulary and frames of reference, and lack of time and meetings places. Common language seems to be crucial for the successful transfer of knowledge since its absence easily leads to lacks of trust and/ or understanding.

## 2.5 LEADERSHIP

On the topic of a community's capacity development and leaders as main players Chaskin et al. (2001, p. 27) state that they '... advocate for community interests and catalyse the formation of informal groups to address emerging problems or capitalize on opportunities. The more active the leaders are, the richer the body of activities the community can support.'

According to Chaskin et al. (2001, p. 28), within community capacity building, leaders are vehicles of change in charge of the followed tasks:

- Define objectives and maintain the goal direction.
- Provide and maintain the group structure.
- Facilitate group action and task performance.
- Represent the group to external actors.
- Facilitate adaptive work.

The development of leaders usually involves the enrichment of the human capital, resources and perspectives of the community's current or potential leaders. It seeks to identify and stimulate as many individuals as possible that are capable

and willing to be responsible for the well being of their communities. Moreover, leader development for community capacity looks for individuals to be the spearhead that brings the necessary changes.

#### 2.5.1 TRAINING STRATEGIES FOR BUILDING LEADERS

Different strategies for building leaders result from combining two dimensions: process and target. Process is related to the type of training, either formal or “on the job”, while the target may be individuals or groups.

Regardless of the target, Chaskin et al. (2001) establish that formal training oriented to build community capacity, usually focus on one or more of the following areas:

- Information dissemination.
- Personal empowerment/self esteem building.
- Building skills useful for civic participation.
- Cultivation of behaviours and perspectives.

The strategy of training “on the job”, also called “engagement approach”, is based on developing leadership by “doing something”, instead of using formal training. This approach has multiple advantages, such as providing volunteers with an immediate connection to the community capacity building agenda and understanding of the community’s issues while learning how to work together, and providing volunteers with legitimacy due to the visibility of their accomplishments. Furthermore, this approach ‘also has the virtue of being much better suited than formal classes to adult styles of learning; lessons are usually



better internalized by participants and hence last longer. This approach also provides group members with a shared set of experiences and, over time, a history that can be referred back to as a way of reinforcing lessons learned earlier, sometimes in very powerful ways' (Chaskin et al., 2001, p. 36).

Regarding the target, and although leadership can be exercised individually or as a group, collaborative approaches seem to be more promising for building community capacity, '... as the difficulty of effecting meaningful change to benefit disadvantaged groups becomes more widely apparent, community capacity building initiatives are giving greater attention to the strategy of preparing groups of individuals in a community for leadership roles' (Chaskin et al., 2001, p. 41). The advantage of this approach goes far beyond the power of numbers: cadres of leaders that share language and vision can support each. Moreover, the message is reinforced by the different voices that bring it, increasing the chances of being heard in the community.

The other side of the coin is that this approach requires more resources: time, energy, commitment, and perhaps money. This is especially true when training is intensive and requires volunteers to be absent from their homes for certain periods of time.

### 2.5.2 WHOSE SKILLS TO DEVELOP?

Besides deciding the approach, it is also necessary to decide whose skills to develop. Naturally, the questions that pop up are: Who is going to choose the candidates? And what will be the selection criteria? The candidates can be chosen

either by the development promoter, by a committee or through an application procedure; current and or prospective leaders can be selected. When it comes to selection criteria, the most common are commitment, knowledge of the community, energy, time, availability, integrity, etc.

At this point it is worth mentioning that burnout is common among committed leaders, therefore, for the sake of sustainable community capacity building, leadership development should be institutionalized. Developing a mechanism for permanently expanding the pool of potential participants is easier said than done.

### 2.5.3 LEADERSHIP DEVELOPMENT AND COMMUNITY CAPACITY

Within interventions intending to build community capacity, leadership development is not an end in itself but a way of achieving other community betterment goals. Furthermore, those goals are what attract and motivate participants. Therefore, leadership development strategies work best when they are clearly oriented to support participants in pursuing those goals.

Leadership skills development is not equal to community capacity development *per se*. To improve community capacity, leadership's skills must be utilized for the betterment of their communities. In other words, leaders contribute to the community capacity 'when they learn and practice a style of leadership that is inclusive and collaborative. Practicing this type of leadership can include seeking ways to mobilize people who are willing to participate; spreading and delegating tasks so that as many people as possible can contribute, ... [and] looking for opportunities to connect people... It means making efforts to strengthen the

community characteristic that lie at the heart of capacity...’ (Chaskin et al., 2001, pp. 57-58).

## Chapter 3: METHODOLOGY

This chapter presents the research paradigm behind this research, the methodological philosophy and strategies of enquiry, a description of the research process as well as every detail related to the data collection, including schedule, research site and methods employed for collecting data.

### 3.1 RESEARCH PARADIGM

In social sciences, there are two main epistemological orientations or **paradigms**: the **positivism** and the **constructionism**. Claiming for the unity of sciences, positivism ‘...argue[s] that people and things are sufficiently similar for them both to be studied in the same way. ...Constructionists, in contrast, argue that while positivism may be an appropriate epistemology for the natural world, it is inadequate for the understanding of the human world’ (Thomas, 2004, p. 42).

In *Qualitative Inquiry*, Butler-Kisber (2010, p. 5) states that ‘Social constructivism is predicated on the idea that lived experience is socially constructed, understood in context, and influenced by historical and cultural experiences known to individual. Social Constructivist researchers situate themselves in their work, use open-ended questions, emergent analysis and develop close relationships with participants in order to explain in great detail the particular experience or phenomenon under study’. This research can be framed within the constructivism paradigm given the intention of explaining the

phenomenon under study from the point of view of its protagonists, the use of open-ended questions and the development of close relations with the participants.

### 3.2 METHODOLOGICAL PHILOSOPHY AND STRATEGY OF ENQUIRY

The most fundamental goal of social researchers is ‘to identify order and regularity in the complexity of social life; try to make sense of it’ (Ragin, 1994, p. 31). There are others more specific goals in social research that lead to the achievement of the fundamental goal. Some of these specific goals are: identifying general patterns and relationships, either testing and refining or advancing theories, exploring diversity, interpreting culturally or historically significant phenomena, giving voice, etc. The diversity of these specific goals has to do with the diversity of the society (Ragin, 1994).

This research seeks to interpret a culturally significant phenomenon while giving voice to its protagonists. The culturally significant phenomenon is the improvement in living conditions of the peasants of the Peruvian Sierra. The value of interpreting this event lies in its oddity. The second goal of this research, to give voice, aims to tell the story of the Peruvian peasants of the Sierra, thus enhancing its visibility.

The **research strategy** is the outcome of pairing goals and research methods. Therefore, once the goal of the research is defined, the next step is to define the research **method**. In other words, after defining what we want to achieve, it is

necessary to define how to achieve it. Broadly speaking, research methods can be grouped into two categories: qualitative and quantitative. Not every method serves for every goal and for certain goals some methods are more suitable than others. While Quantitative methods are more commonly used in natural sciences, qualitative methods are more suitable for social science research.

Qualitative research is defined as ‘... multi method research that uses an interpretive, naturalistic approach to its subject matter. This means that qualitative researchers study things in their **natural settings**, attempting to make sense of, or interpret, phenomena in terms of the **meanings** people bring to them’ (Denzin & Lincoln, 1994, p. 2). In qualitative research few cases are studied, but many aspects of each case are covered (Ragin, 1994). ‘Qualitative research is an inquiry process of understanding based on distinct methodological traditions of inquiry.... The researcher builds a **complex, holistic picture**; analyses words, reports detailed views of informants, and conducts the study in a natural setting’ (Creswell J. W., 1998, p. 15). The philosophical position of qualitative research is broadly “interpretive”. Its analysis and explanations are more holistic: The data generation methods are flexible and sensitive to the data’s context and its explanation and data analysis methods involve an understanding of the complexities and contexts (Mason, 2002).

According to Ragin (1994), the goals of giving voice and interpreting culturally or historically significant phenomena are best served with qualitative methods. Given the nature of this research, most of the collected data is qualitative, although not exclusively.

### 3.3 THE RESEARCH PROCESS

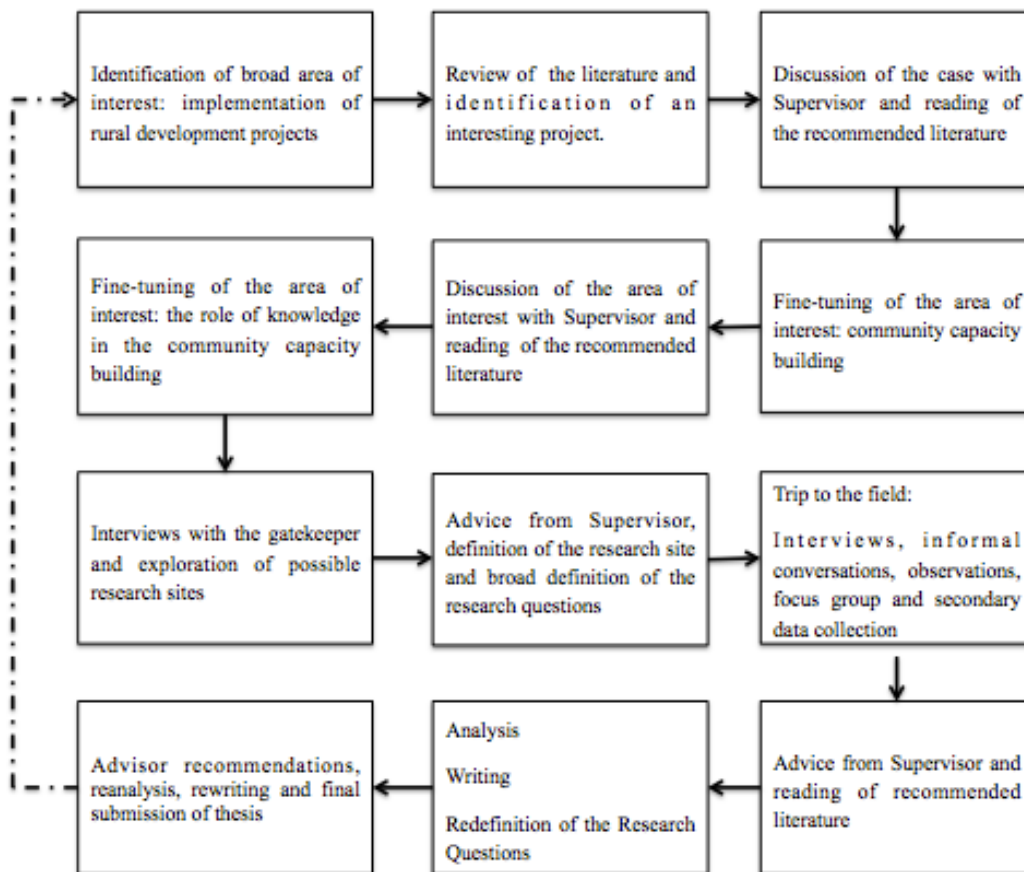
The first step in the process of this research was to identify a broad area of interest: successful rural development projects. In particular, what enthralled me the most was the replication of endogenous developmental experiences beyond its context. In turn, and thanks to the guidance of my supervisor, this led me to the alternative approach of Community Capacity Building for Rural Development.

While looking for a successful case study of rural development, I found the experience of Sierra Productiva in Peru that, beyond its interest, has the advantages of shared language and cultural similarity. The data collection would be easier in Spanish, my mother tongue, than in a foreign language and since I come from South America, the understanding of the culture allows me to better interpret the phenomena. Once the framework and the case study were decided, I had to choose the aspects that interested me the most in order to deepen the literature review. At this point, the aspect that guided my research, in terms of data collection and literature review, was the transmission and creation of knowledge for community capacity building.

With these ideas in mind, and some tentative research questions, I went on a field trip to Cuzco, Peru. There, I had access to IAA's documents and was able to interview IAA's staff and the peasants involved in Sierra Productiva. During the fieldwork, new aspects of the case arose, such as Sierra Productiva related previous development projects and leadership development. After writing the fieldwork reports, I came back to the readings, this time attempting to find in the literature what I had experienced in the field.

Throughout the process, the research questions were evolving to become the questions that will be answered in the chapters containing the data. In turn, the gathered data was analyzed to reach the conclusions detailed in the last chapters of this thesis. Finally, as the dashed arrow indicates, this led me to the next starting point of this process, this time a PhD research project. All this process is illustrated in Figure 3-1.

FIGURE 3-1 THE RESEARCH PROCESS



Source: Created by author.



### 3.4 DATA COLLECTION

In this section I will detail the data collection methods and instruments that I utilized for collecting primary data. This description includes references of where, when and how this data was collected as well as who participated in this research. Regarding secondary data, it was gathered through books, brochures, videos, and IAA's internal documents, such as external evaluations and strategic plans. This documentation was kindly provided by the directors of the institution. I also utilized government and international organization statistics.

#### 3.4.1 STUDY SITE

The research site was selected according to my personal interest: rural development and the Peruvian culture. Among other aspects, it grabs my attention that Peru was a very advanced civilization up to the arrival of the Spanish in the XV century, and now is one of the poorest countries of South America (United Nations Development Program, 2011).

Regarding Sierra Productiva, I came to know about it in 2011 when the World Challenge selected it as a semi-finalist. The world challenge is 'a competition organised by BBC World News Limited ("BBC World News") and Newsweek, aimed at finding projects or small businesses from around the world that have shown enterprise and innovation at a grassroots level' (The World Challenge, 2012).

I got the email address of Carlos Paredes, the National Coordinator of Sierra Productiva, from a magazine article and I wrote to him requesting additional

information. As simple as that, a mail correspondence began that last from January 2010 up to the moment of writing this thesis.

Since Sierra Productiva is present in more than 10 departments of Peru, and given the time and funding restrictions, I had to choose one for my fieldwork. With the support of Carlos Paredes and my adviser, who recommended me to go where everything began, I chose the MCJM for doing most of my fieldwork. I also visited the Catholic University of Peru, to have some informal conversations with professors researching the topic and to go through its library.

Once I reached Cuzco city I met IAA's Director, who provided me with internal documentation of the organization, made suggestions of people to speak with, arranged meetings and provided me with transportation.

I collected data and wrote this thesis throughout 2012, the process had three different stages: the pre fieldwork, the fieldwork and writing and analysis.

The pre fieldwork was the exploratory stage in which I gathered general information about Sierra Productiva, and then narrowed down the site and the topic. The main activities during this first stage were email exchanges and telephone conversations with the coordinator of Sierra Productiva - my key point of contact throughout this phase of the research - and revision of materials such as websites, videos, documents and books.

The fieldwork was the data collection stage; here the main objective was gathering primary data, though I gathered secondary data as well. For gathering primary data I travelled to Peru and spent three weeks in Lima and Cuzco, with

most of the time spent in Cuzco. The activities of the fieldwork had to do with the selected data collection methods: interviews, informal conversations, observations and a focus group. Table 3-1 provides a precise schedule of the data collection.

TABLE 3-1 DATA COLLECTION SCHEDULE

Stage	Objective	Period (Month/day)	Place	Field Research Method/ activity
Pre fieldwork	Gather general information and decide the site of the fieldwork	01 ~ 05	Japan	Informal conversations and telephone interviews with my doorkeeper. Gather secondary data
Fieldwork	Gather primary and secondary data	06/12~06/14	Lima. PUCP	Interview key informants
		06/15	Travelling	Travel from Lima to Cuzco
		06/16~06/17	Cuzco City. Institute for the Agrarian Alternative	Obtain and read internal documents of the IAA. Obtain a list of key informants and arrange meetings
		06/18~07/02	Cuzco city and the Sierra.	Interviews, informal conversations, observations and focus group.
		07/03	Travelling	Travel from Cuzco to Lima
		07/03~07/04	Lima. PUCP	Interview professors.

Source: Created by author.

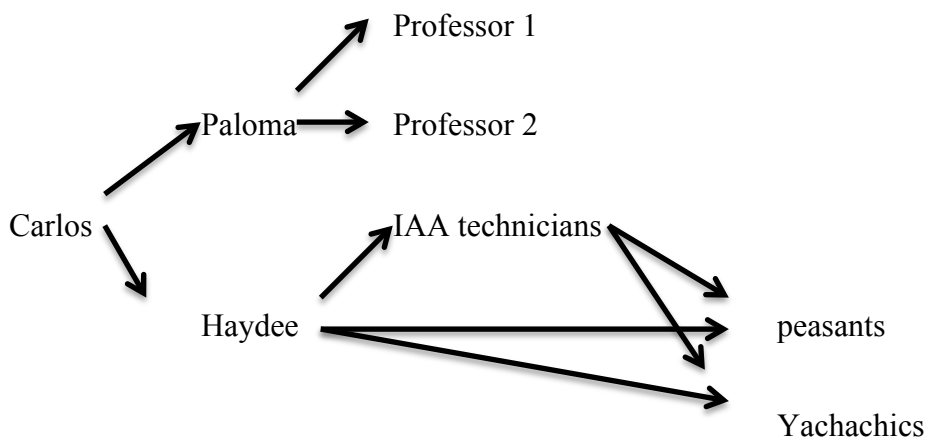
Finally, I did the writing and analysis of the data from August till November 2012.

### 3.4.2 POPULATION

Giving that ‘We can’t study every case of whatever we’re interested in ...’ (Becker, 1998, p. 67) researchers use sampling. There are two types of sampling methods: probability and non-probability.

In a non-probability sampling, participants are chosen based on the researcher’s judgment rather than following statistical procedures that support the representatives of the sample in the target population. This type of sampling method best serves qualitative research not aimed for generalization.

Snowball sampling is a non-probability method of sampling commonly used when locating the members of the population is difficult. In these cases, the researcher collects data from the located members and asks them to help him/her to find other members of the same population. I built the sample of this research using Carlos Paredes’s network and using snowball sampling.



### 3.4.3 INSTRUMENTATION

The utilized methods were interview and informal conversations, observations, focus group and photos.

#### 3.4.3.1 INTERVIEW

Questioning is a central tool of the research process and interviewing is one of the main techniques for building data in qualitative research. ‘If there is one thing that distinguishes the social sciences from natural science, it is that while both rely on questions to guide inquiry, only social scientists ask questions in order to produce data. We may want to know about atoms and molecules, but asking them how and why they behave as they do is not an option’ (Thomas, 2004, p. 150).

There are two types of interview: open-ended and semi-structured interview. Open-ended interviews are a more conversational and informal type of interview. Semi-structured interviews, in spite of having some level of flexibility and being conversational, include a list of topics and sub-topics (Mason, 2002). The first was mostly utilized at the beginning of the research while semi-structured interview was more utilized in the second stage of the fieldwork, when the topics to cover during the interviews were more defined.

All the interviews were recorded and transcribed in Spanish. The transcripts were used as raw material for writing the data chapters. Some information was summarized into charts to give a schematic view of the process.

Table 3-2 contains the interview schedule:

TABLE 3-2 INTERVIEW SCHEDULE

Timeframe	Interviewee	Affiliation	Place
12/06	PAREDES, Carlos	Sierra Productiva' s Coordinator	Lima, cafeteria
13/06	GUEVARA GIL, Jorge Amando	Professor of PUCP	PUCP
13/06	BELLATINO, Paloma	Student PUCP	PUCP
16/06~21/06	ROMERO, Haydee	IAA Director	IAA Cuzco
22/06	PERALTA MAMANI, María	IAA' s technician	IAA Yanaoca
22/06	LUQUE LIMO, Benigno	Yachachic	IAA Yanaoca
22/06	CHOQUECILLO CHOQUE, Efrain	Yachachic	IAA Yanaoca
27/06~28/06	CCOTO MERMA, Nicanor CCALLO HUANCA, Rubén TACUSSI CALLA, Juan CCOTE QUESPE, Luis	Peasants of the community of Colliri, MCJM. Selected participants of the Focus Groups	Colliri, in the interviewee' s houses.
27/06	LAZO FLORES, Alodia	Yachachic	Pampamarca, in her house
28/06	CUSI CCAPATINTA, Edilberto	Former yachachic	Colliri
29/06	CHUQUITAPA, Carlos	Former IAA technician	Yanaoca, in a cafeteria
30/06	BERNNA PUMA, Elloy	FDCC, former general secretary	IAA Cuzco
30/06	BOLQUES MAMANI, Marcelino	Yachachic	IAA Cuzco
01/07	ROMERO, Haydee PAREDES, Carlos	IAA' s director Sierra Productiva' s Coordinator	IAA Cuzco

Source: Created by author.

#### 3.4.3.2 PARTICIPANT OBSERVATION

Participant observation is an essential method of qualitative research. Through spending time in the field with IAA' s technicians and director I had the

opportunity to observe and listen to people's way of doing Sierra Productiva. I tried to understand the meanings of those people's actions (Brewer, 2000).

The belief in the worth of studying social phenomena first hand, besides through documents, given the complexity of the social world, justify the selection of this method of data generation (Mason, 2002).

#### 3.4.3.3 FOCUS GROUP

Focus group is a qualitative research technique typically used for testing concepts, products and messages. It is a meeting of (usually) around 10 people for a discussion about a certain topic. Its results are not necessarily representative of the population from where the sample was taken. Although not suitable for generalization, focus group offers an in-depth understanding of the target's perceptions, feelings, attitudes and motivations (Edmunds, 2000).

In this research, the focus group's aim was to evaluate the community capacity and to clarify the policy structure of a community that had introduced Sierra Productiva. One of the reasons I choose this method for data collection was my interest in participants' discussions.

The participants were selected by María, an IAA technician, according to the selection criteria that I established: participants should be men and women of one of the communities of the MCJM, they should have implemented Sierra Productiva's technologies to some extent, and among them should be communal authorities, yachachics and peasants. The criterion was fulfilled: The participants are 10 men and two women; Out of them four are yachachics, seven peasants and one communal authority

The entire activity was divided into three parts with a break in the middle. First was a group discussion to answer a group questionnaire—aiming to clarify the policy structure- then a mapping -aiming to assess the ability of the community to identify and access to resources- and, finally an individual questionnaire –aiming to inquire about the attributes of the communitarian capacity. The questionnaires were sent to the IAA’s managers in advance for their information and to adjust the questions according to their comments and suggestions. María, the IAA’s technician, helped me with the translation to Quechua (the mother tongue of the participants) and with the organization of the meeting.

The entire discussion was audio recorded and transcribed. Details of the focus group such as venue, participants, affiliation, activities, etc. are detailed in Table 3-3.

TABLE 3-3 DETAILS OF FOCUS GROUP

Date	June 25, 2012	
Time	7pm to 9pm	
Number of participants	12: 10 men and 2 women	
List of participants and affiliation	Participant	Affiliation
	Merma Cotto, Nicanor	Yachachic
	Ccallo Huanca, Ruben	Yachachic
	Ccallo Huanca, Susana	Peasant
	Tacusi Calla, Juan	Communal Authority
	Ccote Quispe, Luis	Yachachic
	Ccoti Huanca, Maximo	Yachachic
	Soncco Huillca, Felipe	Peasant
	Huanca Campos, Jorge	Peasant
	Puma Colla, Zombio	Peasant



	Zauri Huanca, Francisco Ccoto Tacusi, Sabino Ccolque Tacusi, Nilda	Peasant Peasant Peasant
Selected method	Purposeful selection based on discussions with IAA's director and technicians	
Contents	Group Discussion about Sierra Productiva's Policy Structure Map Drawing (Identification of resources) Individual Questionnaire about Community Capacity Features	

Source: Created by author.

After the focus groups, I conducted in depth interviews with some of the participants looking for answers, clarifications and to collect information about collective activities of the community.

#### 3.4.4 DATA VALIDATION AND ANALYSIS

Data triangulation is a technique that allows joining independent pieces of information. By doing this, partial knowledge or understanding of something becomes more comprehensive (Ragin, 1994). Given that qualitative methods are holistic, quite often researchers '... must triangulate information about a number of cases in order to make sense of one case' (Ragin, 1994, p. 103).

In this research, the data validation method was triangulation: selecting new sites from the ideas developed in the previous site, providing an opportunity to confirm and deepen the understandings of the first setting.

#### 3.4.5 METHODOLOGICAL LIMITATIONS

Beyond my lack of experience in doing fieldwork, this research had three main limitations: language, transportation and time.

Although Spanish is the official language of Peru, the mother tongue of most indigenous Peruvians is Quechua. They learn Spanish at school, but not many of them have attended. Furthermore, and even in the case of knowing Spanish, they prefer to speak in Quechua. I don't speak this language and I conducted all the interviews in Spanish, in some cases, with the assistance of a translator. Language was an important limitation when I conducted the focus group.

Transportation in Peruvian rural areas is not a minor issue. Public transportation is quite scarce and informal, and depending on it can be troublesome. Since I didn't have my own car I couldn't move freely on my own. Fortunately, the IAA provided me with cars, drivers, and a technician to come with me to the interviews. Without this support, it would have been impossible for me to reach the sites.

The limited time for conducting fieldwork obliged me to narrow down the sites and this research took place mainly in the MCJM, in Cuzco. In other departments, the implementation of Sierra Productiva has been done with lesser participation of the IAA. This might be for further studies.

## Chapter 4: PERU, THE MCJM AND SIERRA

### PRODUCTIVA

This chapter contains all the necessary background information of the research. The first section describes the place where the research was conducted: The Microwatershed of Jabon Mayo (MCJM), located in the Department of Cuzco in Peru, this section also attempts to describe the country from the point of view of its social conditions.

The second section of this chapter explains what “Sierra Productiva” is, making a periodization containing its different stages. The first are the “foundations”, when all the events that take place since the land reform up to when the development of Sierra Productiva took place; the “validation” period in which the set of 18 technologies, later known as Sierra Productiva, was developed; and finally the “replication” stage, when these technologies were spread throughout Peru.

#### 4.1 PERU AND THE MCJM

In this section I will provide a brief description of the place where Sierra Productiva’s experience originated and also where this research took place: Peru and the Microwatershed of Jabon Mayo (MCJM).

The country will be described from the point of view of its social conditions and its administrative organization will be briefly mentioned as well. In the case of the MCJM, general descriptions of its features and the way its communities are organized are presented. At the end of this section, Image 4-2 contains a map of the departments of Peru, indicating the location of the department of Cuzco, followed by Image 4-3, a map of the communities of the MCJM.

#### 4.1.1 SOCIAL CONDITIONS OF PERU

Peru is located in South America and its population, by 2011, was 29.4 million inhabitants. Roughly speaking, one third of the population lives in rural areas, where the incidence of poverty, measured either by income or other social indicators such as satisfaction of basic need, is around two times the national average.

According to the 2011 Human Development Report, Peru's Human Development Index (HDI) is 0.725, which classifies the country as a highly developed country. However, if we take the inequality in income distribution into account when looking at the HDI, the value of the indicator becomes 0.444, classifying Peru as a low development country (United Nation Development Program, 2012). The inequality in the distribution of the income is also reflected in Peru's 2011 Gini Coefficient of 0.48 (World Bank, 2012).

According to the Amartya Sen approach of capacities, when it comes to development rather than the distribution of the income, what matters is the distribution of opportunities. To assess this and inspired by the Sen's social

welfare function, there is a Human Opportunity Index (HOI), ‘... a synthetic measure of inequality of opportunity in basic services for children ... that holds that a development process in which society attempts to equitably supply basic opportunities requires ensuring that as many children as possible have access despite the fact that these circumstances—such as race, gender, parents’ income and education, and urban or rural location—will make major differences in the lives they lead’ (Paes de Barro, Ferrerira, Molinas Vega, & Savedra Chauvi, 2009, p. 2).

The basic opportunities, considered by the index, are related to education (completion of sixth grade by age 13, school attendance for children ages 10 to 14) and housing condition (access to water, sanitation services, and electricity for children age 0 to 16). Using these variables for describing basic opportunities, the HOI provides comparable information of the level of equality of opportunity in a country. The average HOI for Latin America is 70 while 66 for Peru. In other words, the opportunities in Peru are less well distributed than in Latin America on average (Paes de Barro, Ferrerira, Molinas Vega, & Savedra Chauvi, 2009).

Regarding inequality in the distribution either of income or opportunities, geography matters: rural areas tend to lag behind urban in both, developed and developing countries. Geographically, Peru is divided in four different ambits: Cost, Lima, Jungle and Sierra. This research was done mainly in the Sierra, where social conditions are not only worse than in the Cost, the most affluent region, but they are also worse than in the rest of the country, taken as a whole. For instance, and according to the Institute of National Statistics of Peru, the incidence of

poverty, measured by the national poverty line, in the rural Sierra is almost two times the average of the country. The same can be said if we take Unsatisfied Basic Needs as the indicator for measuring poverty. Hereafter, Table 4-1 provides some figures of Peru:

TABLE 4-1 PERU IN FIGURES

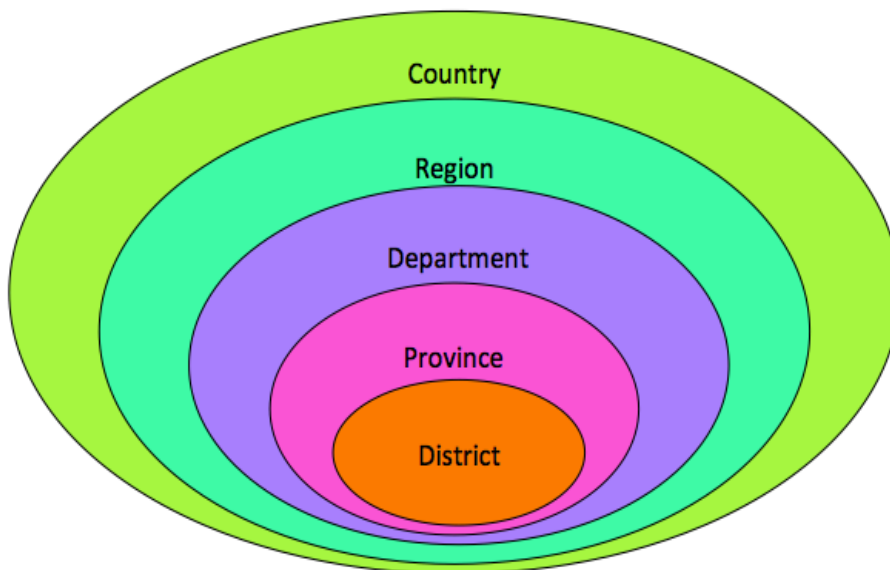
<b>Indicator</b>	<b>Figure</b>	<b>Units</b>	<b>Year</b>
Population	29.4	Million inhabitants	2011
Rural population	28.4%	% Of total population	2010
Improved sanitation facilities, rural areas	37	% Of the rural population with access	2012
Improved sanitation facilities, urban	81	% Of urban population with access	
GDP per capita, PPP	10.318	Current international US\$	2011
Gini Index	48,14		2010
Literacy rate, adult total	89.6%	% Of people ages 15 and above	2007
Malnutrition prevalence, weight for age	4.5%	% Of children under 5	2008
Malnutrition prevalence, height for age	28.2%	% Of children under 5	2008
Incidence of Poverty in the rural Sierra, measured by the national line of poverty	65.6	% Of population	2009
Incidence of Poverty in Peru, measured by national line of poverty	34.8	% Of population	2009
Population with at least one basic need unsatisfied in rural Sierra	41	% Of population	2010
Population with at least one basic need unsatisfied in Peru	26	% Of population	2010

Data Source: (The World Bank, n.d.; National Institute of Statistics of Peru, n.d.)

#### 4.1.2 ADMINISTRATIVE ORGANIZATION OF PERU

The administrative organization of Peru, up to 2002, was as follows: the country is divided into 24 departments, each with their respective provinces, which in turn are divided into districts that eventually can be divided into towns and communities. In 2002, aiming to boost the regional economies of Peru, the figure of region is introduced in the administrative organization. The new regulation promotes grouping departments into regions by a referendum. So far, there are as many departments as regions. In other words, the idea of the clusters hasn't worked. Figure 4-1 illustrates the administrative organization of Peru.

FIGURE 4-1 ADMINISTRATIVE ORGANIZATION OF PERU



Source: Created by author.

### 4.1.3 MICROWATERSHED OF JABON DE MAYO

The Microwatershed of Jabon de Mayo, is located at 3.790 ~ 4.525 m. over the sea level in the Department of Cuzco<sup>2</sup>, in the Province of Canas, occupies part of three districts: Yanaoca, Pampamarca and Tupac Amaru, and it harbours 11 well-organized peasant communities. The following sections encompass some of its general features as well as a brief explanation of how its communities organize themselves.

#### 4.1.3.1 GENERAL FEATURES OF THE MCJM

Until the late 90's agriculture used to be not only the main economic activity, but also rainfall dependent. In its 11,600 hectares, the average rainfall is 650 mm/year, raining 3 months per year. At a provincial level, the water and sanitary conditions of the households are a big issue: 13.9% have a non-potable water supply, 69.44% are supplied from wells, rivers, etc. and the water deficit affects 17.07% of them, 91.3% have no sanitary facilities, 5.98% are black wells and only 2.31% are connected to a public sewer network (Valederrama Escalante, 2007).

In summary, the MCJM, located in the highland rural area of an underdeveloped country, with little access to basic services, located 24 hours by bus from the capital can best be described as a forgotten-by-everyone sort of place. The picture below was taken at the site on June 22, 2012.

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<sup>2</sup> The department of Cuzco has 13 provinces, which in turn contain 108 districts and approximately 800 communities.



IMAGE 4-1 BARREN LANDS



Source: Photo taken by author.

By 1993, the 11 peasant communities of the MCJM (Llallapara, Chollocani, Layme, Chicnayhua, Yanaoca, Jilaywa, Colliri, Quecha Quecha, Pabellones, Pampamarca and Tungasuca) were compounded of around 1600 families and 8000 inhabitants. The illiteracy rate was 32.1% on average, but in women older than 40 the rate was 87%. In spite of the isolation and the low level of illiteracy, these peasant communities are very well organized. (Valederrama Escalante, 2007).

#### 4.1.3.2 THE ORGANIZATION OF THE COMMUNITIES OF THE MCJM

The peasant community is a traditional organizational form, conceived as a reservoir of social and economic institutions whose origins are in the pre-Columbian "*ayllu*": a few communities made up of linked extended families. The community's organization is divided into three levels of government: the General Assembly, the Board of Directors and the Specialized Committees. The first one

is made up of all community members and is the ultimate authority in the community and the body that makes decisions regarding the collective good. The Board of Directors is composed of: a President, a Vice President, a Secretary, and two or three members of the community. The responsibilities of this Board are: coordination of all official businesses of the community and implementation of the resolutions of the General Assembly. The Specialized Committees are established in the General Assembly and their aim to meet activities of communal interest as support and or advisory bodies (Valederrama Escalante, 2007).

The peasant community – organized through the General Assembly, the Community Council and the Special Committees as community government bodies– concentrates the decision-making processes, the mechanisms of control and the imposition of sanctions. Each community has also an internal status that contains a set of rules tailored to the particular conditions of the community. Other organizational forms within each community are grassroots organizations, such as “mothers’ clubs”, “cup of milk”, and producers' associations, to a lesser extent.

The decision-making among the 11 communities of the MCJM is made in the District Federations of Peasants of Yanaoca, Tupac Amaru and Pampamarca. A larger decision-making instance is the Provincial Federation of Peasants Canas, the main forum for dialogue between communities in the province of Canas. Peasant leaders are also formally involved in the development of the participatory budget, supervising and monitoring municipal finances and policies, though without voting rights (Valderrama Escalante, 2007).



## 4.2 SIERRA PRODUCTIVA

“Sierra Productiva”, means productive Sierra in Spanish, and is an approach for rural development. Specifically, is a set of technologies of food production and transformation and natural resource conservation (land, water and energy).

The main motivation to develop these technologies was that agriculture was the only source of income and was rainfall dependent; at 4000 meters above sea level, the volumes produced did not meet the minimum levels of subsistence, bringing child malnutrition and migration to the cities -with the consequent family breakdown. Therefore the aim was to increase food production and stop migration to the cities, while reducing child malnutrition and preventing family and community breakdown (Paredes, 2008; Ferser, 2008). It is worth mentioning that in the process of developing technologies, the efforts were addressed also to shift from agriculture to livestock production, a more profitable activity due to the geographical conditions.

The story of Sierra Productiva, may be divided into three stages: The “foundations”, all the events that took place from the land reform up to the development of Sierra Productiva. The “validation” period, from 1994 to 1999, in which a set of 18 technologies -later known as Sierra Productiva- was developed and established. During this period, the methodology for promoting the implementation of the approach beyond the limits of the pilot project was also developed. Finally, the “replication” stage was when these technologies were

spread throughout Peru. Hereafter, a description of each stage and a map of the respective stakeholders.

#### 4.2.1 FOUNDATIONS

The foundation stage begins in the early 80's, with the agrarian reform and its challenges, and lasts until the first trainings by contest, including the efforts towards implementing irrigation systems. During this stage, all the foundational events that led to Sierra Productiva in its current shape took place.

##### 4.2.1.1 THE STRUGGLE FOR LAND AND FUTURE CHALLENGES: TO CREATE VIABLE SMALL-SCALE PRODUCTION

Roughly speaking, the struggle for land in Peru began in 1958 and culminates in the early 80's. Although true that Peru has become a country where peasants hold the land they work, this distribution has several problems. Among them, one of the most notorious is the scale; the land reform resulted in excessive small-scale farming (Ministry of Agriculture of Peru, 2011). Another difficulty is the complex Peruvian topography -something like a crumpled paper with water shortages in the highlands, unsuitable soils for agriculture in the jungle and problems of salinity on the coast. Lack of knowledge and formal education are not a minor issue either: peasantry has been born and raised in the hacienda<sup>3</sup>, with poor access to formal education and working as unskilled farmers in most cases. In other

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<sup>3</sup> The hacienda was a system of land distribution and ownership of the colonial era, which generated the concentration of large portions of land in few owners.

words, after getting the land, the challenge is how to make the production viable in these parcels.

To make the things worse, from 1982 a severe seven-year drought affected Peru, creating a desperate situation: peasants planted but harvested nothing. One of the outcomes of this experience was the awareness that water is key to development. This is the first part of the history of the water that will end up in Sierra Productiva and its irrigation system.

#### 4.2.1.2 THE PEASANT'S SCHOOL

The Peasant School was a project of the IAA, in collaboration with the FDCC, to develop peasant leaders that run from 1984 to 2002 in different departments of Peru. This school is important to understand how Sierra Productiva will be spread, first in Cuzco and then in other regions of Peru.

Briefly speaking, participants from different departments will attend these “schools” for two years, once per month and each meeting lasting two days. During these 2 days, they listen to presentations and discuss them. At the beginning, the topics of the school were strongly oriented to the national and peasant organization’s situation, but in the early 90's, they became about productive issues. As it will be explained in the following section, these were times of Fujimori and peasants were thinking about how to produce without government aid.

#### 4.2.1.3 THE 90'S, THE CENTRAL GOVERNMENT POLICIES AND THE REACTION OF THE PEASANTS

On July 28, 1990, Alberto Fujimori assumed the role of Peru's president and by August the 8<sup>th</sup> launched a package of economic measures known as the "Fujishock". These measures worsened the terms of trade between the city and the countryside. For example, before the Fujishock, a bag of fertilizer cost the equivalent of 120 kilograms of potatoes, after the Fujishock it cost the equivalent of a ton. To this situation is added the non-compliance by the government of previously accorded support measures to the rural sector and the FDCC called for a general strike. This expression of civil resistance lasted 17 days but it didn't cast any positive results (AP-AFP-Reuter, 1990). As a consequence the FDCC, began reflection sessions driven by the question: *how to produce without the aid of the government?* Carlos Paredes, Fieldwork note of June 12<sup>th</sup>.

#### 4.2.1.4 THE WORK OF SOME NGOS: WATER AND UNU CAMACHIK RAYMI

In the MCJM, peasants, FDCC, and several NGOs, agreed that lack of water was one of the main reasons for poor production. The drought of the 80's had left the awareness of the importance of the water to develop the area. It was mandatory to develop irrigation infrastructure, and several NGOs were working on it.

The PRODERM, a Dutch NGO that landed in Peru when the agrarian reform to support peasants in finding production alternatives, was implementing irrigation infrastructure and training peasants in the use of irrigation systems under the approaches "training by competition" and "peasant to peasant" through the Unu

Camachik Raymi<sup>4</sup>. The latter was an annual competition involving the participation of the 11 communities of MCJM. The ultimate goal of the contest was to train peasants in the use of the irrigation systems. To do this, instead of enabling peasants directly, the PRODERM got “camachiks”, peasants considered experts in gravity irrigation, to teach to peasants how to irrigate. After being trained, the peasants of the 11 communities of the MCJM competed against each other to find out who had learned better how to water.

This contest, that last from 1991 to 1993, proved to be a great stimulus to overcome the reluctance of peasants to participate in training and implement new technologies. Therefore, and when PRODERM was coming to an end, the IAA took and broadened the approach of training contests.

#### 4.2.1.5 THE PACHA MAMA RAYMI

The following training contest was the Pacha Mama Raymi. This contest, besides dealing with irrigation, goes further and links the issue of water with implementation of planted grass and livestock. It also includes other areas, such as organization and environment. The idea is to introduce the notion that water should be for grass (for feeding livestock) rather than for agriculture. Indeed, this contest was the spearhead of the shift from agriculture to lives took that took place with Sierra Productiva.

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<sup>4</sup> Unu Camachik Raymi means "who commands the water", in indigenous language.



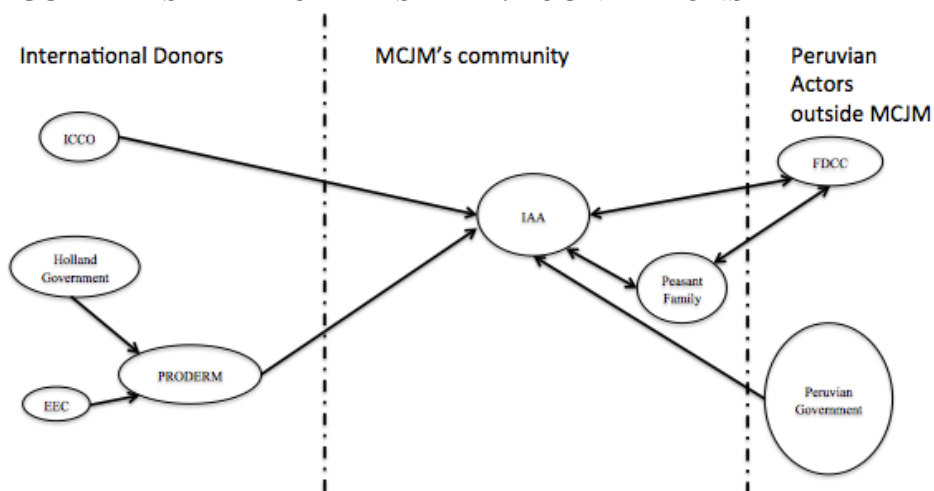
#### 4.2.1.6 STAKEHOLDER OF THE FOUNDATIONS STAGE

The foundation stage started with the pass of the land to the peasants. To achieve this, the peasants of Peru funded the Peasants Movement. Within this movement, the peasants were organized into Federations. They were departmental, provincial and district federations. Peasants' Federation of the Department of Cuzco (FDCC) is the most important for the case of Sierra Productiva.

The IAA, the institution that later on developed Sierra Productiva, worked with the FDCC since the time of the struggle for the land until nowadays. ICCO has funded the operating cost of the IAA since its beginnings.

The PRODERM was a developmental organization supported by Holland's Government in 51%, the Peruvian Government by 36% and the EEC (Chavez, 1986). By 1990, when the PRODERM disappeared, its experience was collected by the IAA, especially its training approach. Hereafter, Figure 4-2 illustrates the stakeholders of this stage

FIGURE 4-2 STAKEHOLDERS' MAP: FOUNDATIONS



Source: Created by author.

#### 4.2.1.7 FOUNDATIONS STAGE, A SUMMARY

In summary, during the foundation stage, political events like land reform and the application of a package of policies that deepened the crises of the agrarian sector, left an organized peasant class and the awareness that they should look for their own solutions to overcome the underdevelopment. The drought of 1982, in turn created the awareness of the importance of water for the development. Furthermore, it drove the efforts of other NGO's, like PRODERM, to address irrigation related issues, like the lack of irrigation systems and knowledge to utilize them. The need of supporting peasants in the use of irrigation systems led to the Unu Camachik Raimy, the water fest that introduced the notion of training by contest and under the approach of peasant to peasant. Finally, the shift from agriculture to livestock has its origins in the Pacha Mama Raymi.

#### 4.2.2 VALIDATION STAGE - PIC II: COMPREHENSIVE CANAS

PIC II, also known as the "validation stage" of Sierra Productiva, was a pilot project of the IAA developed in the MCJM from 1994/5 until 1999 aimed to come up with a set of technologies of production, conservation and transformation of food and natural resources to overcome the underdevelopment in rural areas of Peru, in a participatory way. These technologies should serve for improving the productivity of the land, increase the amount and variety of food, improve the household and sanitation conditions and, finally, in a second stage, to generate income. The ambitious project also aimed to come up with a mechanism for spreading the implementation of these technologies throughout Peru.

The following subsections contain aspects such as volunteers that participated in the project and their tasks, the technologies grouped by thematic area (productivity of the land, food production and household and sanitation improvement), and an examination of stakeholders.

#### 4.2.2.1 THE CALL FOR YACHACHICS

According to the IAA's director, for being sustainable, the set of technologies to be implemented should be decided and developed in a participatory way. As a consequence, the IAA looked for volunteer peasants to participate in the selection and development of technologies; these volunteers would be the first yachachics, or technological leaders.

The IAA sent documents to the communal assemblies of the 11 communities of MCJM, calling for volunteers. It was necessary for volunteers from each of the 11 communities of the MCJM to be trained in four subject areas: agriculture, livestock, management and organization and environment, to try the suggested technologies on their plots of land, and to give feedback about them to the IAA.

Throughout the five years that the project lasted, the yachachics were trained in the previous mentioned areas and tried each suggested technology in their plots. It was a process of trial and error to find out which of the technologies would best suit the place and the culture. Once the set of 18 technologies, "Sierra Productiva" is consolidated, yachachics come to share their experience and knowledge in the Peasant School and in their communities, and this is how the spread of Sierra Productiva began.

#### 4.2.2.2 THE CALCULATION OF THE COST OF PRODUCTION AND THE SHIFT FROM AGRICULTURE TO LIVESTOCK

‘Here used to be "by culture, agriculture", my father raised me saying that "not a piece of land will be unseeded, otherwise people will call you idle"... and that was the goal: to plant every piece of land’ (Interview with Cusi Ccapatinta Edilberto, 26 June 2012).

Since times of the Pacha Mama Raymi there was agreement among IAA’s technician that the MCJM couldn’t be developed through agriculture. Therefore, irrigation systems would serve best for cultivating grass with the purpose of feeding livestock rather than for agriculture production. The challenge was to make peasants from a traditionally agriculture-oriented area shift from agriculture towards livestock.

To achieve that, IAA’s strategy was to make yachachics calculate the production costs of different products of the MCJM, to find out the most profitable. The rationality behind this was to address efforts towards them when setting the set of technologies.

Under the guide of IAA’s technician, yachachics calculated the cost of production of several agricultural products and compared them with the cost of growing grass (that had begun with the Pacha Mama Raymi). When compared the cost of cultivating grass with the cost of producing potatoes, barley, beans, quinoa, targi, etc., yachachics realized that grass was much more profitable than agriculture. As a consequence, the yachachics came up with the conclusion that they should use

their resources: time, land, labour, and especially water, to grow grass for livestock production leaving agriculture for self-consumption.

From this moment, the yachachics began a campaign in their own communities to promote the cultivation of grass, to shift from agriculture to livestock. They advocate for this shift by talking in their communal assemblies about the advantages of cultivating grass, participating in the organization of Dairy Cow Contests (which will be explained in the next chapter), and casually discussing the topic with their neighbours. At this point, it is worth mentioning that the two municipalities of the MCJM also got involved in this advocacy, sponsoring the prizes of the Dairy Cow Contests. It took between two and three years, depending on the community, but by the end of PIC II, every community of the MCJM was utilizing the best lands, those with irrigation, for grass cultivation. Agriculture became for family consumption.

#### 4.2.2.3 IMPROVING THE PRODUCTIVITY OF THE LAND

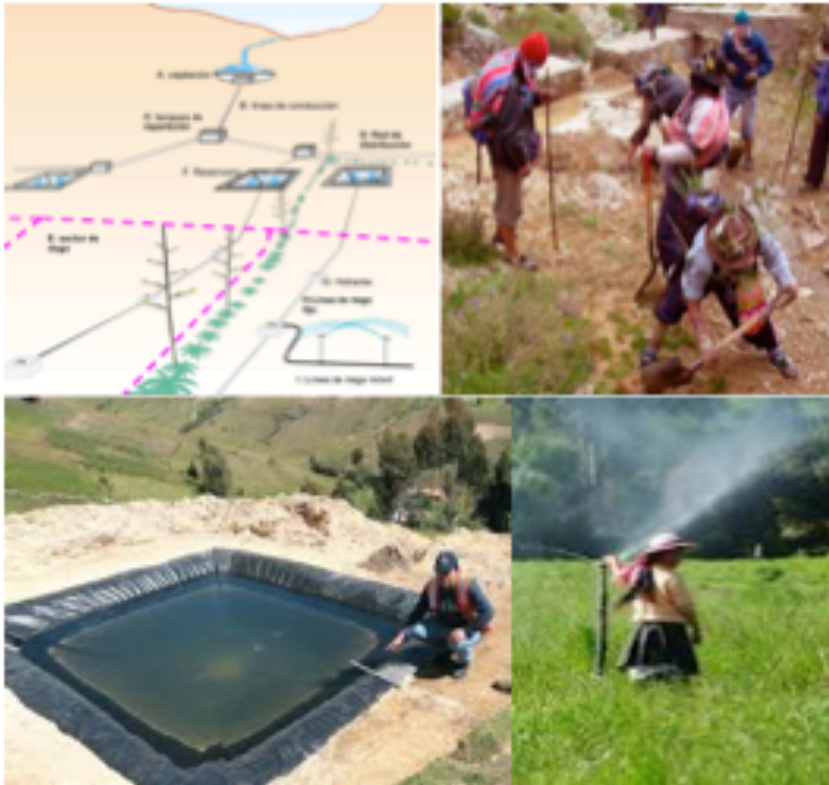
For a parcel to be enough for feeding a family it was necessary to increase the productivity of the land. The IAA found the lack of irrigation, low temperatures, poor maintenance and the use of low quality seeds as the main causes of the low productivity of the land. Therefore, if the productivity of the land would be increased, it was mandatory to incorporate technologies and practices that tackle each of these issues. Efforts regarding irrigation and maintenance had begun before the PIC II, while efforts towards mitigating the low temperatures and improving seeding began with this project. Anyhow, technologies should be chosen, tried and incorporated to the comprehensive set of technologies.

#### 4.2.2.3.1 SPRAY IRRIGATION

This technology is the engine of change: the implementation of this technology implies that agriculture is no longer rainfall dependent. In a place where it rains three months per year, the possibility of spraying the field every day makes an enormous change in terms of productivity of the land and the variety of vegetables that can be grown. Moreover, this technology is the gate to the Sierra Productiva approach since the irrigation system is a prerequisite for many of the technologies. When IAA gets funding for implementing irrigation systems in a community, each yachachic selects and trains 10 families. During the workshop, yachachics explain how the spray irrigation system works and request peasants to draw a map of the surrounding area to identify the potential water reservoirs. After that, all members of the group build channels and ponds to set the system. The water - thanks to a system of pipes and using the gravity force - is conducted from the reservoirs to the plots. In two days, and under the close supervision of the yachachic, the group will build the full system for two families, later on - this time under the supervision of the group leader/aspirant to yachachic- they will build the system for the eight-remaining families.

The irrigation system is not only the first technology to be implemented for introducing Sierra Productiva approach but it is also the first step in the peasant family relationship - yachachic. After the implementation of the irrigation system, the yachachic will continue supporting the family in the implementation of other technologies.

IMAGE 4-4 IRRIGATION SYSTEM



Source: Photos courtesy of IAA

#### 4.2.2.3.2 IMPROVING THE QUALITY OF THE SEEDS: THE CASE OF SEEDING POTATOES

##### USING SPROUTS

Looking for a sustainable way of improving seeds, one of the technicians of the IAA found a research paper about "the improvement of seed potato through sprouts". This cultivation methodology would save time and avoid the hardship of carrying a bag full of potatoes to be used as seeds. So IAA's technical team proposed that the yachachics try this practice. During the training, technicians asked to the yachachics what they knew about that technology and if they had any experience in this regard (this is a common practice in IAA's trainings). At that moment, one of the yachachics said "I know this technology, my grandfather used

to cultivate potatoes like this, and kids had the task of keeping and cutting sprouts into three parts to cultivate the following time”.

In other words, there was research and an experience about how to seed potatoes using sprouts; for IAA’s technicians that makes the introduction of a technology sustainable, because it is not about introducing something new. Usually, according to the IAA’s director, when it comes to agriculture, there was ancestral knowledge and they tried to collect it and incorporate it to Sierra Productiva’s proposal.

#### 4.2.2.3.3 ORGANIC FERTILIZERS AND PESTICIDES

The use of organic fertilizers and pesticides has its origins in the 1990’s, when the rise in prices made it impossible for peasants to buy them. To overcome this situation, the IAA and the FDCC began to promote the use of organic pesticides and fertilizers by teaching how to make them. These technologies were incorporated into Sierra Productiva’s proposal.

#### 4.2.2.3.4 AGROFORESTRY

Above 4000 metres above sea level, the cold and the wind are not minor issues when it comes to agriculture and livestock production. In this regard, the agroforestry aims to create a warmer microclimate that enhances production. This is achieved by planting shrubs in windbreak position, and protecting plots, orchards and pastures from frost. Agroforestry is also useful to increase the production of water by protecting small channels. Moreover, it contributes to avoid soil erosion.



## IMAGE 4-5 AGROFORESTRY



Source: Photo courtesy of the IAA

### 4.2.2.4 MAKING A SUPERMARKET OUT OF THE BACKYARD

One of the main problems that Sierra Productiva aims to tackle is malnutrition, a consequence of a non-varied diet and, in some cases, an insufficient amount of food. Therefore, to tackle malnutrition the amount and variety of food produced should be increased. In a second stage, the surplus production will be sold seeking for income generation. In other words, the application of some of the Sierra Productiva's technologies attempts to transform the backyard of the house into a supermarket, for food provision but also income generation through food selling.

Aiming to increase the diversity and amount of food produced, and additionally improving the productivity of the land, the following technologies and practices were introduced as part of Sierra Productiva.

#### 4.2.2.4.1 FIXED ORCHARD IN THE OPEN FIELD

The fixed orchard is a plot of 100 square meters containing “assembling beds” of one meter in length and passageways of 50 centimetres, where 16 varieties of

vegetables are planted. Peasants are trained in staggered planting; this practice allows having one kilogram of vegetables per day. Moreover, it increases the volumes and diversity of food, improving the nutritional quality of the peasant diet. One portion is consumed and the other could be either sold in the market as fresh vegetables or become inputs to make jams, pickles, nectars, juices, cakes, tortillas and panettones.

#### 4.2.2.4.2 FIXED ORCHARD WITH SHADE

A small plot is fenced with adobe walls and has a ceiling with plastic for agriculture. It creates a special microclimate where tropical vegetables and fruits can be grown. One part is consumed; with its positive consequences in terms of diet diversification while surpluses can be either sold as fresh fruits and vegetables or become inputs for the production of pickles, jams, juices, cakes, etc.

IMAGE 4-6 FIXED ORCHARD WITH SHADE



Source: photo courtesy of IAA.

#### 4.2.2.4.3 EIGHT MINI PLOTS OF ANDEAN GRAINS AND TUBERS

Due to high nutritional quality, the production of Andean grains and tubers was introduced as part of Sierra Productiva. The production is organized in eight

miniplots; each of them must be between 100 and 120 square meters and in this way, it is possible to harvest up to one kilogram per crop per week.

#### 4.2.2.4.4 ASSOCIATED GRASS

The introduction of stockbreeding in a mountainous area like the Peruvian Sierra, where natural grass only grows up to five centimetres and can be cut only once per year, is not possible without ensuring pastures. Therefore, for livestock to be developed it is mandatory to improve cattle feeding production. Grass cultivation is the proposed technology to feed cows and Guinea pigs. In a plot of 500 square meters two associated grasses are cultivated. The cultivated-associated grass, besides being more nutritive than the natural, grows up to one meter and can be cut up to five times in a year. Having green grass throughout the year increases volume and the varieties of possible husbandry production.

#### 4.2.2.4.5 IMPROVED BARN

To develop cattle production to increase milk and meat production, improving pastures and breed is not enough. Better cows also require better housing. Efforts in this direction, as mentioned before, started with the Pacha Mama Raymi and the Dairy Cow Contest. Sierra Productiva approach just includes them within the comprehensive proposal.

IMAGE 4-7 IMPROVED BARN



Source: Photos courtesy of IAA.

#### 4.2.2.4.6 BREEDING GUINEA PIGS

Guinea pig breeding is one of the 18 technologies promoted by Sierra Productiva. If the peasant has cultivated pastures, raising Guinea pigs is not a tough task: these animals do not require much care, the breeding period is only three months and the initial investment is minimal.

Breeding Guinea pigs also have the advantage of becoming a source of animal protein and a monthly cash income. What is more, Guinea pig meat is very popular in Peru and there is an unsatisfied demand (FAO Agriculture Department, 2012).

#### 4.2.2.4.7 BASIC MODULE FOR INDUSTRIAL PROCESSING OF FOOD

In line with “making a supermarket out of your backyard”, one of the technologies proposed by the approach Sierra Productiva is the basic module for industrial processing of food. With this basic module (and the training), peasants can produce dairy products out of the milk and also jams and nectars from the orchard’s products. This not only contributes to the diversification of the diet but also implies that peasants can add value to their products, increasing the gain.

#### 4.2.2.4.8 LAYING HENS BREEDING

Before the introduction of Sierra Productiva, peasants didn’t breed hens. With the introduction of this practice, a family that has two laying hens can eat up to 10 eggs per week, with the consequent nutritional improvement.

#### 4.2.2.4.9 GOLDFISH

To encourage the incorporation of fish into the diet of the rural family, Sierra Productiva introduces breeding goldfish in ponds. Yet, the implementation of this technology is not widespread.

IMAGE 4-8 GOLDFISH



Source: Photos courtesy of IAA.

#### 4.2.2.5 IMPROVING THE HOUSEHOLDS AND SANITATION

When developing Sierra Productiva, another target area for the betterment of rural dwellers was household and sanitation. It is worth to mention that sanitary services such as sewer and running water are very limited. The same can be said for services like electricity and gas. Therefore, the main challenges regarding sanitation were to provide safe water, prevent rural dwellers from getting germs and to decontaminate the field surrounding the houses. Regarding the households, the main issues were the smoke in the kitchens and how to heat the houses. The proposal technologies are:

#### 4.2.2.5.1 SAFE WATER FOR HUMAN CONSUMPTION

Water purified through "SODIS": disposable plastic bottles are filled with two litres of water and exposed to the sun a full day. The sun is responsible for purifying the water killing germs, including faecal coliforms. In other words, by doing something as simple as filling plastic bottles with water and leaving them to rest for one day, families can consume safe water.

IMAGE 4-9 SODIS: EASY SAFE WATER



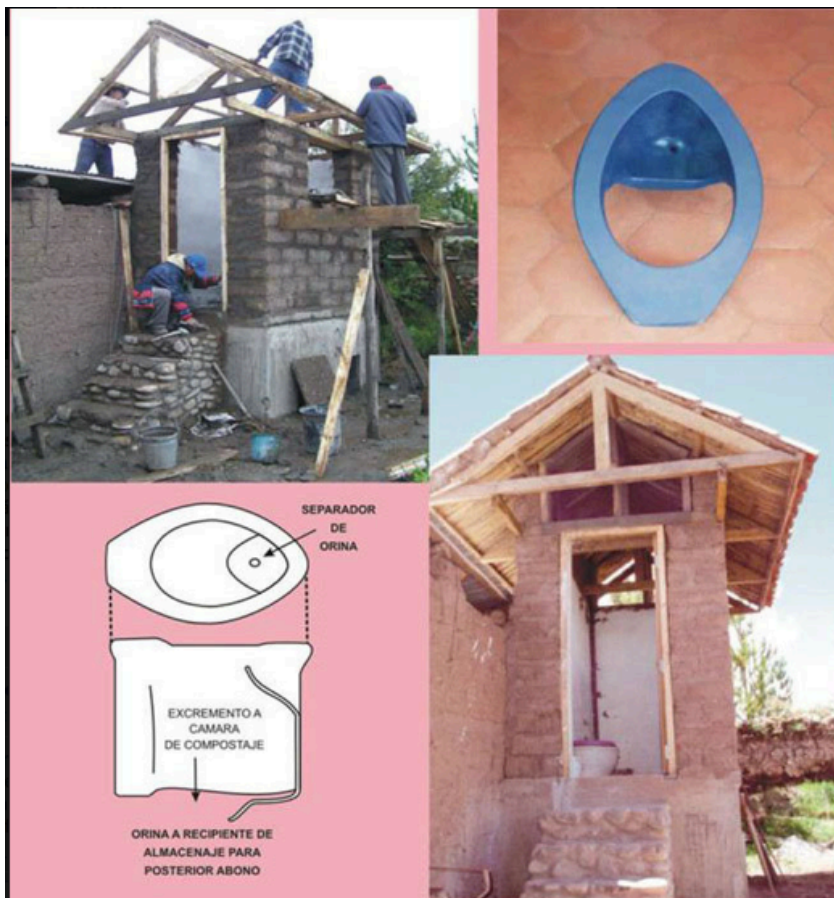
Source: Photo courtesy of IAA.

#### 4.2.2.5.2 DRY BATH

To decontaminate surrounding fields and waters of rivers and streams, improving the health of humans, plants and animals, the proposed technology is dry bath: the bowl of this bath separates liquids from solids, avoiding putrefaction, odours and infectious focuses. Solid falls into a box of sand and sifted soil. Every six months, contents of the box are emptied, covered with leaves and straw, and after a year became organic fertilizer. The liquid goes into an open mouth bucket, the Uric acid evaporates and urea is packed and sprayed in the grass. In turn, cattle eat grass reinforced with nutrients.



IMAGE 4-10 DRY BATH



Source: Photo courtesy of IAA.

#### 4.2.2.5.3 IMPROVED STOVE

The improved stove aims to prevent the inhalation of smoke that causes respiratory diseases while heating water and household. This easy and cheap to make stove achieves the first objective by improving combustion and incorporating a chimney. Beside the fire, a tank of water is installed whose warmed water goes up to a drum and then down to a sink for washing pots, utensils and vegetables. To make the most out of the heat, an oven is incorporated and the chimney runs the length of the kitchen, warming up side rooms.

IMAGE 4-11 IMPROVED STOVE



Source: Photo courtesy of IAA.

#### 4.2.2.5.4 BIODIGESTER

When covered with an agriculture black plastic sheet diluted manure is put in a plastic sleeve, the fermented manure produces biogas that can be captured in a bag. This gas is used to cook and avoid having the need of purchasing gas cylinders. Through this process, in addition to the gas, organic fertilizer is also obtained.

IMAGE 4-12 BIODIGESTER



Source: Photo courtesy of IAA.



The gas of the biodigester serves to change the traditional wood-burning cooking stove, "the conchita" to a gas stove. This change allows inhabitants not only to live in a healthier environment, but also to use the hour and twenty minutes it used to take to prepare a traditional meal in the conchita (a person should be next to the fire, fuelling it) for other activities.

#### 4.2.2.5.5 SOLAR THERMAL BATHS TO IMPROVE PERSONAL HYGIENE

The introduction of a solar thermal bath means access to hot water 24 hours a day, improving personal hygiene.

#### 4.2.2.5.6 SOLAR KITCHEN

This kitchen takes advantages of the abundant sun as source of energy to cook. The sun reflects on a shiny brass or aluminium foil and bounces, emitting heat.

IMAGE 4-13 SOLAR KITCHEN



Source: Photo courtesy of IAA.

#### 4.2.2.6 TECHNOLOGIES, A SUMMARY

“Sierra Productiva” consist of a set of three types of technology: production and transformation of food, preservation of resources (water, energy and environment) ideally implemented in three stages on an annual base. Through these technologies, quantity and variety of food are increased, households are improved and income generation activities are promoted. In few words, the living conditions of rural dwellers, the environment and self-esteem of its participants improve dramatically (Instituto para una Alternativa Agraria, 2000; Ferser, 2008).

Hereafter, Table 4-2 summarize the 18 technologies, the year of incorporation and their type:

TABLE 4-2 THE 18 TECHNOLOGIES

Technology	Year of incorporation	Type
Sprinkler	1	Production
Agroforestry	1	Production
Purified water by SODIS system	1	Improving living conditions / conservation
Improved stove	1	Improving living conditions / conservation
Organic composting	1	Production
Fixed orchard in the open field	1	Production
Mini plots to cultivate Andean grains and tubers	1	Production
Module for breeding Guinea pigs	1	Production
Module for breeding layer hens	1	Production
Plot of associated grasses	1	Production
Dry bath	2	Improving living conditions / conservation
Improved barn	2	Production
Fixed orchard with shade	2	Production

Basic module for processing family craft	2	Transformation
Solar thermo	2	Improving living conditions
Biodigester	3	Improving living conditions / production
Solar cooker	3	Improving living conditions / production
Goldfish	3	Production

Data Source: Instituto para una Alternativa Agraria, 2000

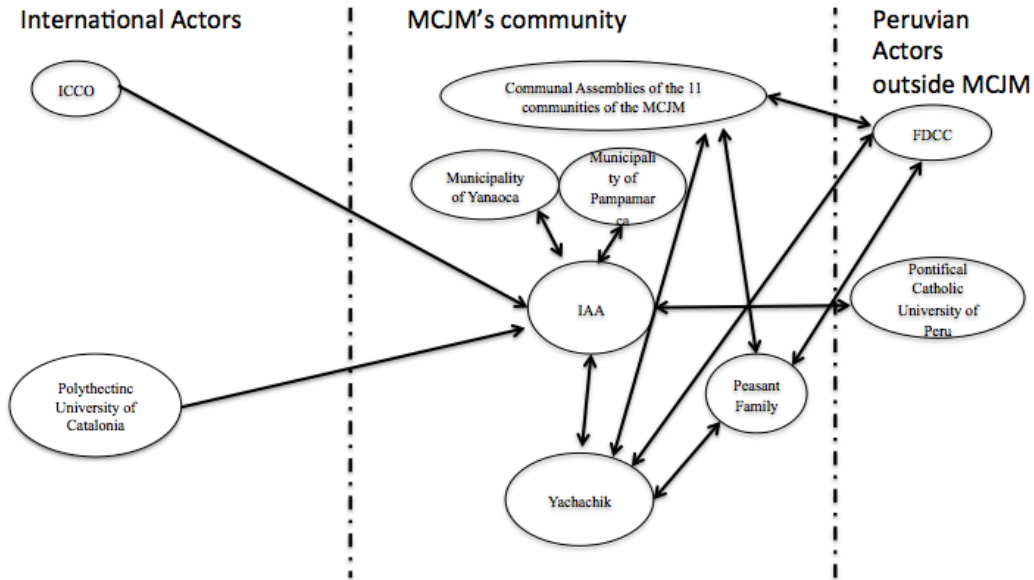
#### 4.2.2.7 STAKEHOLDERS OF THE VALIDATION STAGE

The **IAA** was in charge of the pilot project PIC II, the promoter of the experience. The **Polytechnic University of Catalonia** and the **Pontifical University of Peru** were the main players in the development of renewable energy technologies contained in Sierra Productiva. The IAA, the **Communal Assemblies** and the **FDCC** selected the volunteers that would participate in the project. The **yachachics** would participate actively in the development of these technologies: receiving training, implementing the suggested technologies in their own parcels, sharing what they know with IAA's technicians and supporting other peasants in the implementation of the technologies. The IAA –creating awareness- the yachachics –spreading the word and organizing the Dairy Cow Contests- and the **two municipalities** of the MCJM –sponsoring the prizes- advocated for the shift from agriculture to livestock production. **ICCO** funded the activities of the IAA. Figure 4-3 illustrates the stakeholders of this stage.

#### 4.2.2.8 VALIDATION STAGE, A SUMMARY

The validation stage is the period in which all the technologies contained in Sierra Productiva approach were either developed or integrated into it. These technologies serve for improving the productivity of the land, increase the amount

FIGURE 4-3 STAKEHOLDERS' MAP: VALIDATION



Source: Created by author.

and variety of food, and improve the household and sanitation conditions.

A key factor of this period are the “yachachics”, the volunteer peasants that participate in the project in the development of technologies, trying them and giving feedback about to IAA’s technicians, but also, and maybe more importantly, they share IAA’s vision among the peasantry. One example of this is the shift from agriculture to livestock production: IAA’s technicians belief that best lands should be for grass, for feeding livestock, rather than for agriculture, but were the yachachics who encouraged other peasants to make this shift. In the next stage, the “replication”, the yachachics train and support peasants in the introduction of Sierra Productiva approach within and outside their communities.

### 4.2.3 REPLICATION

Once the project PIC II reached its end, leaving a comprehensive proposal to overcome the rural underdevelopment in the Peruvian Sierra –the approach “Sierra Productiva”-, the next step was to promote its adoption by the rural dwellers. In this regard, the peasants to adopt the technologies may be divided into two groups: those living in the communities of MCJM and those outside the borders of the MCJM Yachachic and Peasant School are the key words for understanding the process of spreading Sierra Productiva.

#### 4.2.3.1 REPLICATION WITHIN COMMUNITIES OF MCJM, THE BEGININGS

The yachachics were in charge of participating in the development of the technologies but also in the development of a mechanism for spreading the experience. In this regard, there was the experience left by the Unu Camachik, the water fest, where peasants taught other peasants how to irrigate. The IAA collected this experience, and the approach “peasant to peasant” was incorporated into the comprehensive proposal as the tool to transmit the technologies and the required knowledge for their implementation. Each of these yachachics will pick between five and 10 families from their communities to assist them in the process of implementing technologies. To assist a family means to teach the family how to introduce the technologies in their own parcels and to follow up the implementation.

#### 4.2.3.2 REPLICATION OUTSIDE THE MCJM, THE BEGGININGS

The Peasant School is the place where the yachachics begin to share their experience beyond their communities. During this stage, the yachachics attend to the Peasant School as lecturer. In this one-day-lecture the yachachic introduces his/ her personal experience to the audience and explains a little about how these technologies work. After that, the Peasant School's participants are invited to the yachachic's house in the MCJM to see the experience with their own eyes. These visits are organized by IAA and are called internships. The IAA, the communal assemblies and the FDCC choose the members of the Peasant School to participate in the internships. Finally, the yachachics also pay visits to the interns in their own houses, to support them in the application of technologies. Thus, the experience is spread first around Cuzco and then the rest of Peru.

#### 4.2.3.3 REPLICATIONS, SECOND STAGE

Some of the peasants trained by the first yachachics, either within or outside the MCJM will become yachachics as well. In this way, together with access to the funding obtained by IAA, other families will be able to introduce the Sierra Productiva's technologies in their plots.

#### 4.2.3.4 STAKEHOLDERS OF THE REPLICATION STAGE

Besides having yachachics willing to spread the word, the IAA as a promoter of the development, the peasantry participating actively, and local governments supporting them, a crucial aspect in the replication is to get funding for implementing the technologies. While in the validation stage stakeholders were

very related to the development of technologies, in this stage they are very related to funding them.

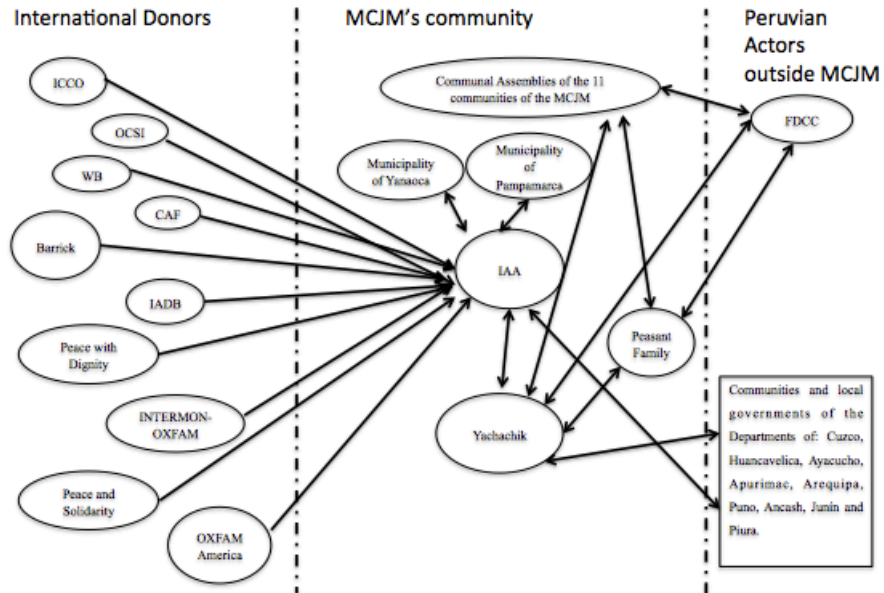
In order to get the funds for implementing technologies in different communities, the IAA designs projects and submit them to funding organizations, mainly international cooperation agencies. There are some cases where municipalities contribute financially to the implementation of technologies, especially irrigation systems.

The projects elaborated by the IAA are characterized by having a target population measured in the number of families, and by asking for funds for implementing a certain number of technologies. The departments where these families are located are: Cuzco, Huancavelica, Ayacucho, Apurimac, Arequipa, Puno, Ancash, Junín and Piura. In other words, the target families are in nine of the 24 departments of Peru. Cooperation agencies to whom the IAA request for funding are: OCSI, Peace with Dignity, Peace and Solidarity, Intermon – OXFAM, OXFAM America, WB, CAF, IADB, CAF, etc. The oil company Barrick also funds technologies. ICCO continue funding the operating costs of IAA. Figure 4-4 illustrates the stakeholders of this stage.

#### 4.2.3.5 REPLICATION STAGE, A SUMMARY

The replication stage is the stage in which Sierra Productiva, the comprehensive proposal to overcome the underdevelopment of Peruvian rural areas, developed in the validation stage, is spreaded within and outside the MCJM with, among others, the technical support of the yachachics and the material support of funding organizations, particularly international cooperation agencies.

FIGURE 4-4 STAKEHOLDERS' MAP: REPLICATION



Source: Created by author.



## Chapter 5: LEADERSHIP DEVELOPMENT AND KNOWLEDGE MANAGEMENT ACTIVITIES FOLLOWED BY THE IAA AS COMMUNITY CAPACITY BUILDING STRATEGIES

In the MCJM the pursued of the development is an ongoing process that begins with the land reform. Throughout the years, the IAA has followed different strategies for promoting the development in the MCJM, all of them related to leadership development, knowledge transfer, and technology implementation. To some extent, all these strategies are related to what today is known as Sierra Productiva.

In this chapter, these strategies are described and analysed from the point of view of the Community Capacity building approach. In other words, the “Peasant School”, the “trainings by contest”, the “yachachics” and the “training by learning groups” are not only described but also analysed thoroughly in terms of their contribution to the community capacity and the strategic components of the Community Capacity that they stimulate. The argument behind this research is that each of the developmental strategies, followed in the MCJM by the IAA, contribute to further development community capacity by stimulating the strategic components, allowing the introduction of more complex, well-being oriented policy structure.

## 5.1 THE PEASANT SCHOOL, A SCHOOL FOR PEASANTS LEADERS

The Peasant School is a set of schools for peasant leaders organized by the Federations of Peasants and the IAA. These schools work at the Department, Province, District and Community level and are a meeting point for informal leaders of these four distinct areas, that not only meet for training, but also for discussing the problems that afflict the Peruvian peasantry.

Broadly speaking, the Peasant School works in the following manner: once a month peasant leaders attend to the school. These meetings last two days: the first day is for presentations and the second day is for assembly. The topics of the presentations of the first day are related to the topics to be discussed during the assembly.

As for the issues raised in the Peasant School, there are two distinct periods:

- From 1984 to early 90's the issues raised in the Peasant School had to do with cultural claims related to indigenous' question.
- From early 90's to 2005 the issues raised were more tied to production and rural development than with cultural claims. In this stage, the yachachics got involved in the schools as speakers: talking about the Sierra Productiva's technologies, how to implement them, and which were their results.

Within the frame of the second period of the Peasant School, the IAA and FDCC organize internships for members of the Peasant School to visit the MCJM. These

internships give them the opportunity of having a first hand experience of what Sierra Productiva is. The yachachics, on their own parcels, explain to the interns how to implement the technologies. After that, and for those interns that want to implement the technologies on their own parcels, the yachachics visit them in various parts of Cuzco. The aim of these visits is that yachachics support other members of the Peasant School in the introduction of the Sierra Productiva.

In the following pages, there is a more detailed description of the Peasant Schools of Cuzco, its operations and its connexion with the dissemination of Sierra Productiva. The section ends with a thorough analysis of this strategy in terms of its contribution to the community capacity and the strategic components of the Community Capacity that are stimulated.

Lastly, this chapter begins with some comments about the peasants' organization of Peru, which I consider useful in order to better understand how the Peasant School works, as well as its role in the dissemination of Sierra Productiva.

#### 5.1.1 THE PEASANT ORGANIZATION IN CUZCO

The peasant organization of Peru has its origins in the struggle for the land that began in the middle of the twentieth century. Peasants are organized into Provincial Federations, which in turn are organized into Departmental Federations.

The Departmental Federation of Peasants of Cuzco (FDCC) was formally founded on March 19, 1961, but had been operating informally since 1947. It is composed of 13 Provincial Federations and each Provincial Federation is composed of

several District Federations. Since its formation, the FDCC has gone through three stages:

- The struggle for the land, dating from 1948 to the early 80s,
- The cultural claim, which has been present since the recovery of the land in the early 80's until the "fujishock" of 1991, and the loss of programs that support the rural sector.
- The search for rural development, from the "fujishock", when the FDCC together with the IAA convened days to think about "how to produce without the help of the government" until nowadays.

#### 5.1.2 THE PEASANT SCHOOL IN CUZCO

In the following subsections there is a description of organizational aspects of the school, the actors involved, and an explanation of the different types of schools. After that, the following sections explain the topics covered in the school and the relation between the school and Sierra Productiva.

##### 5.1.2.1 PEASANT SCHOOLS, GENERAL ASPECTS

The Peasant Schools were a place for training and development of rural leaders that ran from 1984 to 2002. Until the early 90's, there were Peasant Schools in almost every department of Peru. They were organized by the different Peasant Federations and the IAA with the financial support of ICCO at the beginning and then support of the FOS.

The on-site school was a whole system of schools functioning at the following levels: Region, Department, Province and District. They reached their peak in the

80's, but in the early 90's they began to reduce in number and the last school to close was the school in Cuzco. This research is mainly focused on the latter.

#### 5.1.2.2 ROLES OF THE IAA AND THE FDCC IN THE PEASANT SCHOOL

In the Peasant Schools of Cuzco, the IAA plays an advisory and support role, while the leaders of the FDCC play a coordinating and organizational role.

**Guidance and organization:** There is a central team integrated by members of the IAA and the FDCC responsible for the guidance and organization of the Peasant Schools. The team consists of: 20 Members of the Board of the FDCC and eight Professionals of the IAA.

**Coordination:** Facilitators coordinate the various schools. Facilitators are usually: current Board members of the FDCC or former peasant leaders. Each facilitator is responsible for the school of the area where he/ she is living. Facilitators, with the help of the IAA, organize and coordinate the agenda to be held in schools and invite speakers, according to selected themes. This agenda is agreed upon at the end of each month.

#### 5.1.2.3 TYPES OF SCHOOLS

The program of Peasant Schools in Cuzco is composed of two types of schools:

- Provincial and District Schools,
- Macro Schools.

The Provincial and District schools were organized according to administrative boundaries, while the Macro Schools are composed by the Regional School of

SOMUC (Secretariat of the Organization of Rural Women), and Central or Departmental School of Cuzco.

With the exception of the Regional School that is held twice a year, lasting 10 days each session, and in the form of boarding school, schools such as the Departmental school, the Regional School of SOMUC, the Provincial and the District Schools are held once a month and last two days each session.

#### 5.1.2.4 CALL

The FDCC and IAA summon provincial and district leaders to participate in Peasant Schools. To do this, they send written documents to the provincial or district federations. The call to the Peasant School is similar to a call for a peasant meeting. The federations choose the participants that will attend for two years.

#### 5.1.2.5 PARTICIPANTS OF THE SCHOOLS

The following Table 5-1 sets out the categories of participants for each of the different Peasants Schools.

**TABLE 5-1 PARTICIPANTS OF THE PEASANT SCHOOL BY ORGANIZATIVE LEVEL**

Organizative Level	Participants
District	Community leaders Mothers Club Specialized committees District federation leaders
Provincial	Leaders of the district federations SOMUC district leaders Representants of the most representative organizations when there is no federation
Department	Departmental Leaders of CCP Leaders of provincial and district federations *

SOMUC	Provincial and district leaders *
Regional	Regional leaders of the CCP General secretaries of departmental federations SOMUC leaders Mayors and aldermen Leaders of organizations representative of the departmental level

\* At the Department School participate no women leaders, and in the School of SOMUC male leaders don't participate.

Data Source: Instituto para una Alternativa Agraria, 2003

#### 5.1.2.6 TRAVEL ALLOWANCES AND LODGING

The IAA is in charge of paying tickets while the participant pays extra expenditures, such as food. As for lodging, participants sleep on buildings of the FDCC, the IAA or the NGOs "peasant house" or "charger's house<sup>5</sup>".

#### 5.1.2.7 DYNAMIC OF THE SCHOOL

The schools hold monthly meetings of peasant leaders from the various districts and provinces of Cuzco. These meetings last two days:

Day 1: Presentations

Day 2: Assembly of the FDCC

On the first day participants hear presentations on various topics. Speakers might be FDCC's leaders, IAA's workers, intellectuals or, -in the last stage of the Peasant School- yachachics. The second day is assembly day. Similar to the first day of school, participants listen to speakers' presentations on various topics, given by delegates (provincial, district and communal). These delegates vary from

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<sup>5</sup> A charger is a person who comes from the countryside to the city to work as porter. In Cuzco, most of them sleep in the "porter's house".

month to month and bring issues affecting the peasantry. The topics of the presentations are arranged according to the issues. For example, if the theme of the assembly is the drought, irrigation systems is a possible subject for the first day.

The description of the dynamic of the Peasant School's leadership development strategy can be understood as a combination of formal training the first day and engagement strategy the day of the assembly, when decisions are made.

### 5.1.3 TOPICS

The topics of the Peasant Schools, like the peasant organization, have different stages: during the early 90's, the stage of the cultural claims, topics like citizen participation/ participatory democracy were very trendy because -in a yachachic's words- '... participatory rural development cannot exist without the participatory democracy because the latter is needed to manage authorities; organized peasants must decide and manage their own development' (Interview with Bolques Mamani Marcelino, 30 June 2012).

But from the late 90's, and in line with the reflection "*how to produce without the support of the government*", the backbone of the Peasant School is the rural development. And it is in this stage when yachachics joint the Peasant School as presenters, spreading Sierra Productiva's word.

### 5.1.4 YACHACHICS AND THE PEASANT SCHOOL

By 1999, when the PIC II was reaching its end and the Sierra Productiva's approach was well established, the 22 yachachics were invited as speakers to the



Peasant School of the department of Cuzco, in order to share their experiences and explain how to implement the technologies.

In their presentations, the yachachics describe the technologies that were implemented in their parcels, how these technologies were implemented and how they were taught to neighbour peasants so they could implement them. Besides this presentation, and for other members of the Peasant School, to implement the technologies in their own parcels, the IAA and FDCC organize internships.

#### 5.1.5 INTERNSHIP

The aim of the internship is to provide members of the Peasant School with first hand experiences of the approach of Sierra Productiva and the support from yachachics for its implementation.

There are two different stages in the internship: the demonstration and the mentoring. In the demonstration, FDCC's leaders and participants of departmental Peasant School travel to MCJM to visit yachachics' parcels, to see the experience with their own eyes. In the mentoring, first the yachachics travel to different districts of the Cuzco Department (and then to other departments) where Peasant School participants are implementing Sierra Productiva. In the first instance the parcels of the yachachics serve as the classroom for the practice. Then, trainees' parcels become the classrooms where the yachachics will conduct the training.

Yachachics, facilitators and speakers don't receive any payment. The work is based on commitment and solidarity, and in the case of the yachachics, as a way of giving back, in training and support, what they have received (training and

funds for implementing the technologies in their own parcels). In a sense, the yachachics constitute the active link between the school and Sierra Productiva's proposal.

#### 5.1.6 THE SCHOOL AS A LINK BETWEEN SEVERAL ACTORS

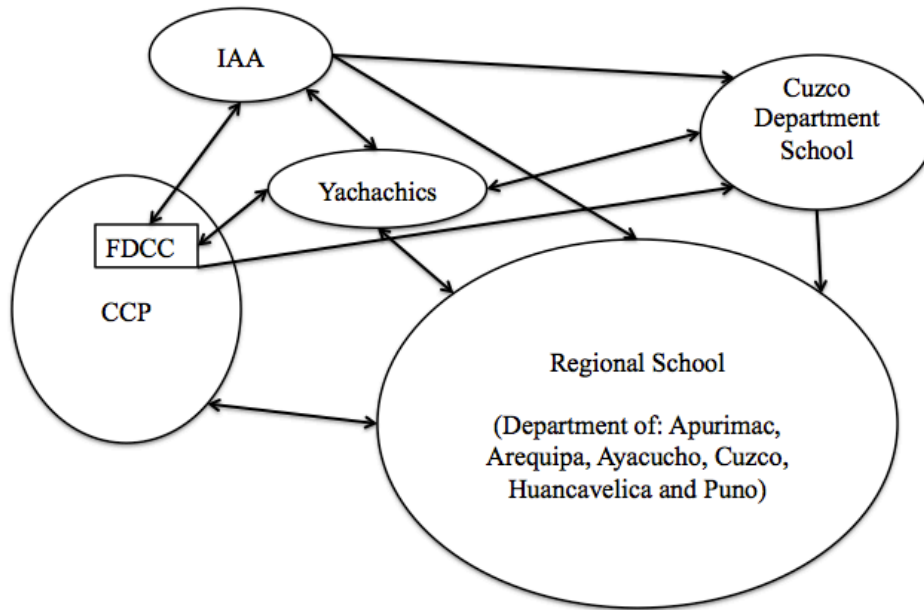
The Sierra Productiva set of technologies is developed and implemented in the MCJM, located in the department of Cuzco, in the province of Canas. This development strategy is then replicated not only in different districts of Cuzco but also in different departments of Peru. The space of transmission of this experience is the Peasant School.

In the Regional School, the leaders from the different departments gather together to hold meetings. In the Cuzco's Department School, the leaders from the different districts (within and outside the MCJM) gather together to hold meetings. In the schools, leaders of different levels come to know about the experience thanks to the yachachics' presentations. After that, they learn how to implement Sierra Productiva's technologies. Furthermore, it is here that peasant leaders get in touch with the IAA and through this contact, may gain access to the cooperation funds, attracted by the institution. With these funds and training they can install technologies in their parcels and this is how the replication takes place.

The Regional School is attended by leaders from the departments of: Apurimac, Arequipa, Ayacucho, Cuzco, Huancavelica and Puno. It is worth mentioning that the FDCC belongs to the Confederation of Peasants of Peru (CCP), which gathers all peasant federations of the country. The connection between FDCC and CCP

allows the yachachics to make presentations in the Regional School, along with the departmental school of Cuzco. The following Figure 5-1 illustrates these links.

FIGURE 5-1 PEASANT SCHOOL AS A NETWORK



Source: Created by author.

### 5.1.7 COMMUNITY CAPACITY BUILDING AND THE STRATEGY OF THE PEASANT SCHOOL

Hereafter, the experience of the Peasant School is summarized in terms of its contribution to the community capacity features and the strategic components that it stimulates, all these components of community capacity are summarized in Table 5-2.

#### 5.1.7.1 CHARACTERISTICS OF COMMUNITY CAPACITY

##### 5.1.7.1.1 SENSE OF COMMUNITY

In the frame of the Peasant School its participants discuss the monthly issues that are affecting Peruvian peasantry and try to come up with solutions to them. During the 80's, one of the main issues was the drought that affected Peru for seven years; the awareness of the importance of the water for the development came together with advocating for irrigation systems' implementation. In the beginning of the 90's, the main issue was the loss of governmental support to the rural sector and the deterioration of the terms of trade between urban and rural products. This time, the IAA and peasants develop alternatives to produce without governmental support, that lead to Sierra Productiva.

#### 5.1.7.1.2 COMMITMENT

To be eligible to become a member of the Peasant School, the person should have a record of participation and commitment with his/ her local community and eventually with the peasantry community. Proofs of this commitment are the occupation of posts in the communal assembly and in the FDCC. Moreover, peasants also have to ensure to the IAA and the FDCC's authorities that they will attend during the two years that the course last.

#### 5.1.7.1.3 ABILITY TO SET AND ACHIEVE OBJECTIVES

In the early 90's the main discussions were about "how to produce without government's support". This objective was achieved through Sierra Productiva. Members of the Peasant School participate in the discussion and/or in the development of the technologies and/ or in their expansion.

#### 5.1.7.1.4 ABILITY TO RECOGNIZE AND ACCESS TO RESOURCES

Members of the Peasant School see the IAA as a way of accessing to funding, technologies and knowledge. Besides, they think that with their land they can produce the food that they need and eventually generate income out of it. They also consider that being well organized is important for achieving their goals.

#### 5.1.7.2 STRATEGIC COMPONENT OF COMMUNITY CAPACITY

##### 5.1.7.2.1 HUMAN RESOURCES

During the first period of the Peasant School its members received training in topics related to the organization of the peasantry, such as citizen participation, organization and participatory democracy. During the second period, and in line with the circumstances of that moment, the topics of the training were mostly related to production. Some of the topics included the different irrigation systems, the use of fertilizer and pesticides to improve the productivity of the land, and the use of agroforestry to create microclimates in highlands, etc.

##### 5.1.7.2.2 LEADERSHIP

One of the conditions for being a member of the Peasant School was to be “an active member of the community”, meaning to participate as an authority of the communal assembly and/or of the FDCC. Thanks to the Peasant School, members are among the first in their communities to get information about the political situation of the peasantry and gain knowledge regarding productive practices. Furthermore, they must share in the communal assemblies what they learn in the Peasant School.

#### 5.1.7.2.3 ORGANIZATION

The Peasant School underpin peasants' federations by being a link between them and the rest of the peasants. Members of the Peasant School listen to peasant federation authorities' speeches and then share the message in their communal assemblies. In the same way, they bring opinions and concerns of their communities to the peasants' federations' authorities.

#### 5.1.7.2.4 NETWORKING

Once per month in the departmental Peasant School, peasant leaders from different districts of Cuzco gather. In the Regional Peasant School, twice per year, peasant leaders of different departments of Peru gather. Furthermore, peasants from different places get in touch with peasant authorities and IAA technicians.

#### 5.1.8 PEASANT SCHOOL, A SUMMARY

The Peasant School was a network of schools aiming to foster leadership among peasants that work in the MCJM between the mid 80's and 90's. Leaders of Peasant School will play key roles in the spread of Sierra Productiva, but also in

TABLE 5-2 COMMUNITY CAPACITY AND THE PEASANT SCHOOL

Characteristics of Community Capacity	Sense of Community	Participants of the Peasant School discuss monthly issues that affect the Peruvian peasantry, and what to do about them.
	Commitment	Only peasants with a trajectory of involvement in their communities are eligible as members of the Peasant School. They also have to ensure they will be enrolled throughout the course.
	Ability to set and achieve objectives	Discussions about "how to produce without government's support" lead to "Sierra Productiva".

	Ability to recognize and access to resources	Awareness of the importance of the IAA -for access to funding, technologies and knowledge- of the land for producing and of organization for achieving goals.
Strategic Component of Community Capacity	Human Resources	Members receive trainings in citizen participation/ participatory democracy and on topics related to production, such as farming, stockbreeding, environment and natural resources management.
	Leadership	Member of the Peasant Schools are transmission belts between the FDCC and IAA, and their own communities. There are among the first to get information regarding political issues as well as training regarding productive practices.
	Organization	The Peasant School underpin peasants' federations.
	Networking	On a regular basis, peasant leaders of different provinces, districts and departments of Peru gather themselves.

Source: Created by Author

others IAA's interventions, as it will be detailed in the following sections.

This leadership development strategy directly targets one of the strategic components of Community Capacity and also, as was detailed in the previous subsection, contributes to the development of the community capacity.

## 5.2 TRAINING BY CONTEXT: PACHA MAMA RAYMI AND THE DAIRY COW CONTEST

A big step in the development of the MCJM was the shift from agriculture to livestock production that took place in the late 90's. The promoter of this shift was the IAA and the institution had to face two big challenges for this shift to take place: the fact that the MCJM had never been stockbreeding oriented so peasants

had little knowledge in this regard, and peasants' reluctance to participate in training and trying new technologies.

The strategies followed by the IAA were the contest known as “Pacha Mama Raymi”, as the spearhead in the introduction of livestock, the calculation of cost of production by yachachics, as a way of sharing IAA's vision with peasant leaders for them to share it within their communities (this strategy will be described in the following section) and finally, the Dairy Cow Contest, which aimed to improve the quantity and quality of the milk, once the first steps in the shift were done.

In the next sections there is a description of both contests, followed by anecdotes of two of their participants: Edilberto and Alodia, yachachics of the first generation. Lastly, the section ends with a thorough analysis of this strategy in terms of its contribution to the community capacity and the strategic components of the Community Capacity that are stimulated.

#### 5.2.1 PACHA MAMA RAYMI

Given the positive response of the peasants of the MCJM to the Unu Camachik Raimy, the IAA decided to utilize contests to train peasants and to introduce new technologies. Making the Unu Camachik broader arise the Pacha Mama Raymi; this took place between 1992 and 1995 in the 11 communities of the MCJM. The areas of competition were: irrigation and livestock, environment, agriculture and organization. Each of the 11 communities could register 10 families and each family received training in the 4 areas, meaning that the 110 families competed



against each other in irrigation and livestock, environment, agriculture and organization. Four practitioners of the IAA, and their technical teams, trained the 110 participating families in the four areas of competition. The families then implemented the technologies in their own plots for the technicians to score their performance in each area. The family with the highest score in one area was the winner of that area.

Livestock and irrigation was the most important area of competition of the Pacha Mama Raymi. IAA's technicians taught the participants how to use irrigation systems, how to manage pasture, how to build stables, how to apply anti-parasitic, etc. One of the objectives was to promote and improve livestock production. A big challenge was the reluctance of the peasant to give shelter to their livestock, so the organizers of the contest decided to give extra points in this regard: The family making the best coverage / shelter received extra points. Then, some participants began to give shelter to their cows. Furthermore, the IAA gave stables (initially they were supposed to be on credit, but payment was never sought) in the same way as it had offered training. In addition to promoting the use of stables and the irrigation combined with pasture management, the IAA -together with the different municipalities of the area- worked in livestock breeding and artificial insemination projects.

In the agriculture segment, peasants learned how to grow vegetables in their gardens for self-consumption. In the environmental area peasants learned how to assemble slow-formation terraces, how to install awnings and how and where to plant bushes for creating microclimates. Finally, the organizational area was

related to supporting the community at the organizational level and with the community chores. This area was not as specific as the previous ones and the performance of each family in this area was very difficult to score.

The day of the contest the scores of the 110 families in the four areas were added up and the winners were announced. The awards were items for production such as seeds, equipment, etc. and the winner of each area was the family as a whole. The contest ended with a party where people could enjoy music, dance and play soccer.

#### 5.2.2 THE DAIRY COW CONTEST

The Dairy Cow Contest is a milking contest that rewards the amount and quality of milk. Organized in three different categories, each participant has 12 minutes to milk his/ her cow and a jury evaluate the milk: the participant that produces the biggest amount of litres of milk, wins. It also rewards the quality of milk based upon how clean it is. The categories are:

- Local cattle, which provide 1 to 5 litres,
- Crossed, which give about 10 litres, and
- Brown Swiss, yielding over 20 litres.

The winner received dairy equipment or farming materials and had to explain to the other participants how he/she took care of his/her cow to produce so much milk or such high quality milk.

The first Dairy Cow Contest was celebrated in 1996 in the community of Yanaoca (one of the 11 communities of the MCJM). Later on -and with the active participation of the yachachics in the organization- it spread to the other communities of the MCJM and around Cuzco. Nowadays, the Dairy Cow Contest takes place three or four times a year during celebrations of the MCJM such as anniversaries of the communities, and others.

The origins of this contest date back to the mid 90's, when one of the main issues -regarding to the promotion of livestock as an economic activity- was that the milk was very dirty and full of germs. What is more, trainings on milking provided by the IAA were not effective. So, Carlos Chuquitapa (one of its technicians), in a technicians monthly meeting, suggested organizing the "Contest of the Dairy Cow". It was the time of the Pacha Mama Raymi and these contests were effective. The Dairy Cow Contest could be utilized not only to promote better practices in milking but also to create awareness of the different types of cows. In this way, peasants saw that some breeds give more milk or meat than others.

After the first contest, some peasants began to ask IAA's technicians what to do to make cows produce more milk. So the IAA began to distribute information about the different breeds and their purposes. And people started to ask how they could buy these cows. The IAA advised: "sell your cows and buy fewer cows that have a higher yield". The IAA also told them that in order to raise and maintain better cows, better care such as stables and good pastures were needed. Therefore, and following IAA's advice, peasants began to build stables and plant grass before

upgrading their livestock. The IAA also accompanied them to sell and purchase livestock. Today, all the cattle in the area have improved and dairy farming is one of the main economical activities.

Although the contest was initially organized by the IAA, the FDCC, and sponsored by the municipality (who funded the prizes), it is currently organized and sponsored by the different municipalities of the MCJM. Nowadays the contest has also become a marketing event of dairy products. "It is a cumulative process, we accumulate and integrate, never starting from a blank slate" (Interview with Romero Haydee, 22 June 2012).

#### 5.2.2.1 EDILBERTO, YACHACHICS AND THE PARTICIPANTS OF THE DAIRY COW

##### CONTEST

Edilberto, one of the first yachachics, told me of his experience as a dairy farmer and participant of the contest. He says that in 1995 he began to sell milk and people criticized him because of a cultural fear of selling things. When he commenced commercial milk production, his high school classmates, who had become teachers or had other more professional jobs -not peasants- used to derogatively shout at him "dairy" when they saw him selling in the street. But he was proud.

He started selling milk in Pampamarca (nowadays nobody sells milk there because it has become an area of dairy farmers and therefore most people have their own cows). He bought a cow that produced eight litres of milk and he could sell each litre for one sol (Peruvian currency). When he returned home after the sale of milk he was so pleased with these eight soles (less than three US dollars)

that he counted them several times. He felt successful and happy. Even today, when he talks about it he is full of enthusiasm. Little by little his customers increased: the people who bought the milk asked him to deliver them milk the next day, as did their neighbours. Then Edilberto advised his neighbours to produce their own milk. In fact, he was the first president of the association of dairy farmers of Pampamarca “Tupac Amaru”. That was the time of the first contest of the dairy cow.

Edilberto explained that the contest served to show how to milk cows and which hygienic clothing should be worn. As it improved the quantity, quality and hygiene of the milk, Edilberto understands the competition to also be a sort of evaluation: he believes that the event allowed the IAA and FDCC to make a diagnosis of the area’s milk producers: How much had they advanced in the production of milk? What kinds of cattle were in the region? Using the answers as starting points, the IAA and the FDCC could set an action plan to support milk production in the MCJM.

I was very impressed with him, he appeared to be a very clear thinker and I asked him to explain a little more. ‘Evaluation is necessary when an institution or a town is in flux. The people must know how well the production and the development are going, to know what is missing. The issue was how to get more and better milk’ (Interview with Cusi Ccapatinta Edilberto, 26 June 2012).

He tells me that the first time he participated he came in third, but as he likes livestock production and he did not want to come third again... he sought out a

better breed. He started with Criollo but wanted a Brown Swiss. On another occasion, he made a good yield of 9.8 litres, but someone from Yanaoca won with 12.8 litres. He continued seeking out ways to improve his livestock, which was Brown Swiss (but not all the Brown Swiss are equally good). The last time that Edilberto participated in the contest his cow yielded 18 litres.

#### 5.2.2.2 ALODIA, MASTER YOGURT MAKER

I met Alodia in the same way that I met Edilberto: by chance. At the beginning of my fieldwork I spent some time with Haydee, the director of the IAA, I spent time with her while she was working to get an idea of the dynamic of the IAA and the MCJM. During this time we had some informal conversations when traveling from community to community. At that time, Haydee was visiting the five peasants that were participating in a pilot project of alternative tourism supported by the World Bank, and Alodia was one of these peasants. Some days after meeting Alodia, I was spending time with Lucía<sup>6</sup> and María, two IAA technicians of the MCJM that were working on another pilot project, “Inside Export”. This project had to do with selling Sierra Productiva’s products and it turned out that Alodia was considered one of the best yogurt and “manjar” (milk caramel) makers of her community and possibly the MCJM, so her products will be displayed within “Inside Export”. I found out that Alodia was one of the first yachachics so I asked her for an interview. She said that nine am the next day would be fine and

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<sup>6</sup> Lucía is food engineer and the niece of one of the first yachachic, María Rosa Gondora, well known among Cuzco peasantry for her political activism.

because Lucía had to pick up some products from her house, we set a double appointment.

At 10 am Alodia hasn't arrived. Lucía calls her several times and twenty minutes later she appears. I've spent one week here and I'm almost getting used to the fact that time seems to be meaningless. We go to her backyard and I ask her, about the contest of the dairy cow and her experience as a yachachic in the community of Pampamarca. She always participates in the contest and has already won grass seeds, pans, thermometers and medicine for her livestock. She appears to be a role model in her community: the first yachachic, a frequent winner of the contest and now she is participating in a new pilot project of alternative tourism. Furthermore, she has implemented almost every Sierra Productiva technology in her house and plot.

As one of the first yachachics, she promoted Sierra Productiva in her community. She tells me that in her community there was neither grass, nor cows, nor milk. According to her, the hills were red (instead of green) and peasants only had sheep that used to come and eat everything. One of her biggest challenges, as yachachic, was to convince people in her community to cultivate grass. 'People of Pampamarca, didn't want to cultivate grass because they thought it wouldn't pay off. Instead, they wanted to grow potatoes' (Interview with Lazo Flores Alodia, 27 June 2012). By this time she was a member of the "club of mothers", an organization whose aim was to administrate government programs such as "the glass of milk", through which the government delivered milk for children of low-income families. So in the club of mothers, in Alodia's words, she begs other

mothers to cultivate grass for raising livestock. “Come on, come on, I will teach you how to do it,” she would say. Finally she convinced one mother and the two of them grew grass. This grass reached a high of 1 meter 10 centimetres!

It took two years for the community to stop being reluctant to cultivate grass. Alodia tells me that during this time at night some neighbours stole grass. So in the monthly assembly she reported these incidents and the president of the assembly said: “all of us have feet, hands and land. Everybody should grow grass. If grass is stolen, the person that is not growing grass will be blamed”. In this assembly it was decided that everybody would grow grass. The IAA and the Municipality of Yanaoca provided the first seeds. According to Alodia, convincing and motivating people are never easy.

Besides training in her own community she also travelled to different communities to train peasants. Outside her community it wasn't easy either but it was not as tough as in her own. What is more, outside her community the implementation of Sierra Productiva's technologies was not only easier but also faster.

### 5.2.3 COMMUNITY CAPACITY BUILDING AND THE STRATEGY OF TRAINING BY CONTEST

Hereafter, the experience of the training by contests is summarized in terms of its contribution to the community capacity and the strategic components that it stimulates; all these elements of community capacity are summarized in Table 5-3.



### 5.2.3.1 CHARACTERISTICS OF COMMUNITY CAPACITY

#### 5.2.3.1.1 SENSE OF COMMUNITY

The Pacha Mama Raymi and the Dairy Cow Contest promoted the introduction of a common economical activity in the MCJM: livestock and dairy products production, which is achieved through training and rewarding peasants' good practices, such as shelter provision and grass cultivation. Both contests are also a gathering where peasants can spend time together in the after-contest celebration. In the case of the Pacha Mama Raymi, dwellers from different communities of the MCJM meet each other and spend time together. The Dairy Cow Contest is celebrated within communities; therefore, dwellers of the same community spend time together dancing and chatting.

#### 5.2.3.1.2 COMMITMENT

Some of the participants of the contests, -like Alodia when trying to convince her neighbours to cultivate grass or Edilberto when saying to his neighbours that milk-production was profitable-, advocate for dairy farming in their communities.

#### 5.2.3.1.3 ABILITY TO SET AND ACHIEVE OBJECTIVES

Participants of the Dairy Cow Contest have the chance to see with their own eyes that, depending on the care, and the breed of cow, milk production can be increased. This in turn is an incentive to improve the breed and care of their livestock. In turns, this led them to sell "Criollo" livestock and buy "Brown Swiss", cultivate grass and also provide shelter to their livestock.

#### 5.2.3.1.4 ABILITY TO RECOGNIZE AND ACCESS TO RESOURCES

One of the reasons why peasants participate in the Dairy Cow Contest is to win prizes such as seeds, thermometers, pans, etc. Participants also look for advice from IAA technicians to improve their livestock. The technicians suggested that they sell Criollo livestock to buy Brown Swiss. They also recommended cultivating grass and building shelters before improving breed, in order to make the most out of it in terms of litres of milk production.

#### 5.2.3.2 STRATEGIC COMPONENT OF COMMUNITY CAPACITY

##### 5.2.3.2.1 HUMAN RESOURCES

Participants of the Pacha Mama Raimy receive training in use of irrigation systems, growing vegetables in the garden, grass cultivation, building stables, injecting anti-parasite to a cow, etc.

In the Dairy Cow Contest participants receive information about the different types of cows, their advantages in terms of milk and meat production and the required care. The winners of the contest must share his/her tips as to how he/she milked the largest amount in his/her category or for having milked the cleanest milk so other participants can learn from the experience of the winners.

##### 5.2.3.2.2 LEADERSHIP

Participants of the Pacha Mama Raymi were the first to introduce livestock production to the MCJM. Furthermore, every original yachachic has been a contestant in the Pacha Mama Raymi. In other words, some of these peasants were also the first to introduce Sierra Productiva.

The yachachics participate actively in the organization of the Dairy Cow Contest in their respective communities, promoting the introduction of the contest in communal assemblies and officiating as judges of the contests.

#### 5.2.3.2.3 ORGANIZATION

The introduction of livestock and dairy products production, led to the settlement of “Tupac Amaru”, an association of milk producers in the Community of Pampamarca.

#### 5.2.3.2.4 NETWORKING

At the end of the Pacha Mama Raymi there is a party where peasants from different communities of the MCJM can meet each other and spend time together. And the same can be said about the Dairy Cow Contest, although the celebrations take place within each community. The contests also require the participation of the municipalities (first for sponsoring the prizes and then as organizers), boosting the relationship between the peasants and the IAA.

TABLE 5-3 COMMUNITY CAPACITY AND TRAINING CONTESTS

Characteristics of Community Capacity	Sense of Community	The contests promote the introduction of a common economical activity in the MCJM Both contests are also a gathering where dwellers of the different communities of the MCJM, or within same community, can spend time together in the after-contest celebration.
	Commitment	Some of the participants of the contests advocate for dairy farming in their communities.
	Ability to set and achieve	Improvement of breed, grass cultivation and better care for livestock.

	objectives	
	Ability to recognize and access to resources	Participants of the Dairy Cow Contest looked for advice from IAA technicians to improve their livestock. Participants of the Dairy Cow Contest win prizes such as seeds, thermometers, pans, etc.
Strategic Component of Community Capacity	Human Resources	Participants of the contests learn about livestock and dairy product production, in addition to farming, environment, etc.
	Leadership	Participants of the Pacha Mama Raymi were the first to introduce livestock production in the MCJM. They will also advocate for the shift from agriculture to livestock production, by organizing the Dairy Cow Contest among others activities.
	Organization	Settlement of the association of milk producers “Tupac Amaru” in the Community of Pampamarca.
	Networking	Contests are also an opportunity for meeting and spending time with dwellers of the same or different communities of the MCJM. The contests also require the participation of the municipalities, boosting the relationship between the peasants and the IAA.

Source: Created by Author

#### 5.2.4 TRAINING BY CONTESTS, A SUMMARY

The trainings by contests began in the MCJM with the Unu Camachik organized by PRODERM, and since then have been utilized as a way of motivating peasants to join the trainings and try new technologies. In this sense, it is worth mentioning that both contests organized by IAA: Pacha Mama Raymi and the Dairy Cow Contest, played important roles in the shift from agriculture to livestock production as main economical activity of the MCJM. Another aspect worth mentioning with regard to the contests is the introduction of the training approach “peasant to peasant”, which was widely utilized in the spread of Sierra Productiva.

Finally, these contests target one of the strategic components of community capacity “human resource” and as was detailed in the previous subsections, this contributes to further develop the community capacity of the communities where they take place.

### 5.3 THE YACHACHICS, TECHNOLOGICAL LEADERS

‘I once had the opportunity to be in Ayacucho, training ... they asked, “What did you bring us? Have you brought us a gift?” We told them: the only gift that we brought is our knowledge, we know ... what we are going to teach you will stay with you until the day you die, but if I give something, that lasts for a while.’ (Interview with Torres Benigno, 10 April 2008).

The first yachachics were a group of peasants of the 11 communities of the MCJM that in 1994 participated in the PIC II pilot project as volunteers. They were not only trained in the application of Sierra Productiva’s technologies but they also actively participated in their development by sharing with the IAA technicians their current agricultural practices and tried every suggested technology in their own plots. Five years later, when this set of technologies was well established and tested, the yachachic started to train other peasants to implement them.

The following section, attempts to clarify who are the yachachics, their origins, and the role of these technological leaders in the dissemination of Sierra

Productiva. Finally, the section ends with a thorough analysis of this strategy in terms of its contribution to the community capacity and the strategic components of the Community Capacity that are stimulated.

### 5.3.1 THE FIRST YACHACHICS

Their name comes from the combination of two words in Quechua<sup>7</sup>: yachay which means "knowledge" and chic which means "he who knows and makes that other learn". Each yachachic applies these technologies in their own field and explains to other peasants how to do the same. After transmitting the knowledge, the yachachic's mission is not over: they accompany the process of change to their neighbours. The experience of some motivates others and the phenomenon is spread. The interest is extended as peasants see the change in the plot of their neighbours; and if a peasant like he or she, with the same resources, could make these changes there is no reason to believe that they are out of reach. The transfer of knowledge is informal yet systematic (Paredes, 2008; Ferser, 2008).

The original yachachics were elected as follows: the IAA sent a document to the community assembly asking for volunteers to participate in the pilot project PIC II, which would be developed in the MCJM. The participants were elected in the frame of the communal assemblies: some offer themselves voluntarily, others were chosen. The IAA looked for four people per community to participate in the pilot project. The participants were to fulfil the following requirements: to be supportive, to be leaders in their communities and to have a history of

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<sup>7</sup> Quechua is an indigenous language of the area of Los Andes in South America,

communitarian involvement. By the time they participated in the PIC II, every yachachic was or had been a member of the Peasant School, and also had participated in the Pacha Mama Raymi. Eventually, some of them would also participate in the Dairy Cow Contest. In addition, many of the yachachics also had served in the FDCC and/or in the assemblies of their communities.

As it was said in the previous chapter, once chosen, the first task of the yachachics was to calculate the costs of production -for the sake of addressing the efforts to the most profitable products-. After reaching to the conclusion that efforts should be addressed to livestock production, leaving agriculture mainly for self-consumption, the yachachics were trained in four subjects/areas, as had happened with Pacha Mama Raymi: agriculture, livestock and irrigation, organization and environment. In their own plots, and accompanied by IAA's technicians, the yachachics implement every suggested technology in a trial and error fashion. Five years later, there is a consolidated set of technologies, now known as Sierra Productiva.

Once the comprehensive approach is consolidated, the yachachics train other peasants in its implementation. These peasants are either neighbours or members of the Peasant School. The yachachics are invited to the Peasant School as speakers to share the experience of the MCJM regarding to rural development. After that, the IAA and the FDCC organize internships for the members of the Peasant School to visit the MCJM and for the yachachics to visit them in their plots, as it was explained in the first section of this chapter. The next generation of

yachachics comes either from neighbouring families or Peasant School's members.

### 5.3.2 THE FAMILIES THAT IMPLEMENT SIERRA PRODUCTIVA

The implementation of Sierra Productiva, -in addition to training, work and local materials-, requires funding. This is especially true for the implementation of the sprinkler system, the most important technology of the set. In the MCJM, and in many departments of Peru, the IAA gets the funds from cooperating agencies. The institution designs projects stating that a certain number of technologies will be implemented in certain target areas for a certain number of families. The selected families will be assigned to different yachachics that will train and accompany them in the process of implementing the technologies.

In the MCJM, the families that will be trained in some<sup>8</sup> of Sierra Productiva's technologies are selected based on a short list made by yachachics and a subsequent screening performed by the IAA and the yachachics of the community. These yachachics submit a list of up to 30 families of their communities to the IAA's Team of Coordination of the MCJM. After submission of the list of candidates, there is a meeting to discuss which families should be supported. In this meeting, the coordination team and the yachachics analyse: the potential of each family for successfully implement the technologies, the line of production in which the family is/will be involved (Guinea pigs breeding and

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<sup>8</sup> Not everybody implements 18 technologies. Usually the implementation of Sierra Productiva is partial. The rational behind this is to focus on a line of production such us dairy products, Guinea pigs breeding, etc.



fattening, vegetables or dairy products) and the leadership of the family in the community. This leadership is evaluated in terms of the participation in the communal assembly and how people of the community perceive the family.

The third stage in the selection process is a meeting with the shortlist of families to discuss the work that needs to be done, in a sort of “entrance interview”. It is important to mention that, for a family, to be assigned to a yachachic means access to yachachic’s training and coaching but also access to funding. Although families contribute in labour and local materials, they are not enough for implementing Sierra Productiva.

Finally, based upon the yachachic’s recommendation the next generation of yachachics will emerge from these families.

### 5.3.3 COMMUNITY CAPACITY BUILDING AND THE STRATEGY OF TRAINING

#### YACHACHICS

Hereafter, the experience of training yachachics is summarized in terms of its contribution to the community capacity and the strategic components that it stimulates; all these elements of community capacity are summarized in Table 5-4.

#### 5.3.3.1 CHARACTERISTICS OF COMMUNITY CAPACITY

##### 5.3.3.1.1 SENSE OF COMMUNITY

Yachachics give their time and knowledge for free, seeking the implementation of Sierra Productiva's technologies in their communities and encouraging others to do the same by becoming a yachachic.

#### 5.3.3.1.2 COMMITMENT

Yachachics train and accompany families of their communities in the process of implementing Sierra Productiva's technologies. They also travel to different communities to provide technical support to other peasants for the implementation of Sierra Productiva's technologies.

#### 5.3.3.1.3 ABILITY TO SET AND ACHIEVE OBJECTIVES

Since their participation in the Peasant School, yachachics advocate for a productive peasantry. They achieve this by providing technical support to peasants' families and selecting the most "promising families" (to receive technical and financial support). These are those with the highest chance of implementing the technologies properly and encourage other members of the community to do the same.

#### 5.3.3.1.4 ABILITY TO RECOGNIZE AND ACCESS TO RESOURCES

Yachachic peasants see the IAA as a source of training and funding and collaborate with the institution.

### 5.3.3.2 STRATEGIC COMPONENT OF COMMUNITY CAPACITY

#### 5.3.3.2.1 HUMAN RESOURCES

Yachachics are peasants that have learned how to introduce Sierra Productiva's technologies, meaning that they have learned about how to take care of the

environment and its resources, farming and agriculture; improve the household, and also how to deal with renewable energies. Yachachics have the knowledge required for doing things such as setting a sprinkler, growing vegetables in a staggered fashion, breeding Guinea pigs, making dairy products and natural fertilizers and so on.

These peasants, before participating in PIC II, had participated in the Peasant School, where they received training in topics related to citizen participation and in the Pacha Mama Raymi, where they also learned about farming, livestock production, environment, etc.

#### 5.3.3.2.2 LEADERSHIP

Yachachics are a cadre of knowledgeable leaders that promote the introduction of Sierra Productiva within and beyond their communities. They also foster the next generation of yachachics by training and appointing them.

Before becoming yachachics, these peasants have participated in the Peasant School, where later on they would spread the word of Sierra Productiva through presentations and internships. They have also participated in the Pacha Mama Raymi, receiving training and being the first to introduce livestock production in the MCJM, an activity that they was promoted in the early days of Sierra Productiva, by presenting the topic for discussion in their communal assemblies, encouraging their neighbours to plant grass and participating in the organization of Dairy Cow Contests in their communities.

#### 5.3.3.2.3 ORGANIZATION

Yachachics participate actively in producers associations and festivals. The existence of some of them, such as the Dairy Cow Contest and the association of milk producers “Tupac Amaru”, are closely related to yachachics’ activities.

#### 5.3.3.2.4 NETWORKING

Yachachics are nodes between the peasant family and the IAA, that in turn connect the peasant family with funding from international development agencies and other organizations. Yachachics also travel to different communities either for giving or receiving training, getting in touch with peasants from different communities.

TABLE 5-4 COMMUNITY CAPACITY AND TRAINING YACHACHICS

Characteristics of Community Capacity	Sense of Community	Yachachics promote the implementation of Sierra Productiva within peasantry community.
	Commitment	Yachachics advocate for the betterment of the peasant community by getting actively involved in promotional activities such as contests, and the introduction of Sierra Productiva.
Characteristics of Community Capacity	Ability to set and achieve objectives	Yachachics advocate for a productive peasantry by providing technical support and selecting families to receive it together with funding.
	Ability to recognize and access to resources	Yachachic peasants see the IAA as a source of training and funding and collaborate with the institution.
Strategic Component of Community Capacity	Human Resources	Yachachics are knowledgeable peasants: they have been trained in topics related to citizen participation in the Peasant School and in farming and livestock production, environment and natural resource conservation, including renewable energies in the frame of the Pacha Mama Raymi first, and PIC II later.

	Leadership	Yachachics are a cadre of knowledgeable leaders. They are among the first to implement productive technologies and practices that improve living conditions in rural areas. Furthermore, they promote their spread among the peasantry community. Yachachics also foster the next generation of yachachics.
	Organization	Yachachics participate actively in producers associations and festivals.
	Networking	Yachachics are nodes between the peasant families and the IAA, that in turns connect the peasant families with funding from international development agencies and other organizations. Yachachics train peasants within and outsider their communities, getting in touch with leaders and peasants from different communities.

Source: Created by author

#### 5.3.4 THE YACHACHICS, A SUMMARY

The yachachics are technological and knowledgeable peasant leaders that have been trained in citizen participation related topics within the Peasant School and in production related topics within the Pacha Mama Raymi and later PIC II. These peasants will not only share what they know regarding topics such as food production and environmental conservation but will also share their vision and values within and outside their communities. They are the spearhead of the expansion of the Sierra Productiva approach.

This intervention primarily highlights two of the strategic components of community capacity: leadership and human resource. Furthermore, and as was

detailed in the previous subsection, this intervention contributes to further develop the community capacity of communities where it is implemented.

#### 5.4 TRAINING OF LEARNING GROUPS / LINES OF PRODUCTION

‘First we need to tackle child malnutrition, so that people are not mentally handicapped, it is useless to eat well if you have parasites, so you have to take care of sanitization, and only after that you can do business, generate income. Many development proposals begin generating income and this does not work’ (Interview with Romero Haydee, 21 June 2012).

Peasants that implement Sierra Productiva’s technologies are trained first by yachachics and then by IAA technicians in the frame of “learning groups” or “training by lines of production”. The aim of these trainings is to support peasants in commercialization and value addition to their products. These training are held once a month and the groups are made of peasants that are working in the same line of production and live in the same community.

In this section, I will describe how these trainings are organized, what the lines of production are, and how they are related to Sierra Productiva. After that, I will describe my experience with these trainings in the time that I was in the IAA office of the MCJM. The trainings I witnessed were for the vegetable group, another for the Guinea pig breeders group and finally, Alodia’s yogurts. Finally, the section ends with a thorough analysis of this strategy in terms of its contribution to the community capacity and the strategic components of the Community Capacity that are stimulated.

#### 5.4.1 ORGANIZATION OF GROUPS BY LINE OF PRODUCTION, GENERAL ASPECTS

Groups are organized according to line of production and community. Meaning that within a learning group are peasants living in the same community and working on the same line of production, or something similar, and have applied the same Sierra Productiva technologies. There are three lines of production: dairy products, Guinea pig breeding and fattening<sup>9</sup> and vegetables.

##### 5.4.1.1 LINES OF PRODUCTIONS AND SIERRA PRODUCTIVA'S TECHNOLOGIES

The 18 technologies of Sierra Productiva can be grouped into two main groups: those aimed to improve living conditions of peasants and those that are production oriented. Regarding the lines of productions, each one is organized around a set of technologies. Below, Table 5-5 details what technology each line of production uses.

TABLE 5-5 SIERRA PRODUCTIVA'S TECHNOLOGIES AND LINES OF PRODUCTION

Technology	Groups of learning/ line production		
	Production & transformation of milk	Guinea pig breeding & fattening	Vegetables
Sprinkling	X	X	X
Agroforestry			X
Improved stove	X		
Organic composting			X

<sup>9</sup> Both lines "dairy products" and "Guinea pig breeding and fattening" have specific contests.

Fixed orchard in the open field			X
Mini plots to cultivate Andean grains and tubers			X
Module for breeding Guinea pigs		X	
Plot of associated grasses	X	X	
Improved barn	X		
Fixed orchard with shade			X
Basic module for processing family craft	X		
Bio digester	X		

Data Source: Instituto para una Alternativa Agraria, 2000

#### 5.4.1.2 THE LEARNING GROUPS AND ACCESS TO THE MARKETS

One of the aims of the IAA is to support peasants in the commercialization and value addition of their products. To achieve this, and in the frame of the training groups, some of the strategies followed by the IAA are:

- Promotion of producers' associations to overcome the challenges of small scale of production.
- Design of products oriented to differentiated markets and introduction of productive practices that lead to higher value-added, such as production of organic vegetables and vacuum packaged cheeses and Guinea pigs.
- To link peasants with governmental rural development projects.

All these strategies expanded upon and illustrated in the followed sections, where I describe my experience attending training for a group of vegetables growers and



another for a group of Guinea pigs breeders and also to the preparations for a promotional event called “inside export”.

#### 5.4.2 THE TRAINING FOR THE GROUP OF VEGETABLES OF PAMPAMARCA

Hereafter I will describe what I observed attending a training for the group that focuses on vegetables of the community of Pampamarca. Training is once a month and takes place on the grounds of one or more members of the group. This format is common among trainings by learning groups in different communities and different lines of productions. This month, the topic of the training was how to make organic pesticides and fertilizers.

##### 5.4.2.1 GENERAL OBJECTIVES OF THE TRAINING

The overall goal of the trainings for this group is to consolidate vegetable production for both, consumption and commercialization. In the short term, the first priority is to ensure food security for peasants. In a second stage, the objective is that peasants are able sell their vegetables in differentiated markets. Both objectives require a higher and steady volume of production. In this regard, IAA technicians promote land fertilization, staggered planting, and pest control. To access the differentiated markets, the strategy set by the IAA -beyond increment and stabilization of the levels of production- is to promote producers' associations, and to support peasants in certifying their products as organic.

##### 5.4.2.2 BEFORE THE TRAINING BEGINS

We reached Pampamarca; the venue is literally on the street. It is 10 am and although the meeting was called for nine am still some people are missing.

Nobody seems to be impatient. While waiting, María talks with the people about how they are doing, whether they are selling, how production is going, etc.

Some minutes after 10 am María begins the training by playfully asking: What do we have to eat today? ... Participants look at each other and smile. It seems that they have not complied with the suggested length and width of the rows, nor with staggered planting. The next thing she asks about is sales.

#### 5.4.2.3 PRICES

Regarding to, it happens that peasants are receiving three soles per kilo of onions and carrots, and this seems very little to them, moreover, all of them agree that this price does not cover the costs of production. María tells them that if they certify the production as organic, they could sell their products at better prices. To sell their vegetables as organic they not only have to get the certification but also they have to stabilize production, meaning they must achieve a certain volume and regularity in deliveries.

#### 5.4.2.4 TRANSPORTATION

Taking vegetables to market is not easy: going and coming to the nearest market might cost about four soles, and the bus doesn't depart till it is full, so it is hard to estimate how much time it will take. Furthermore, you cannot predict when the last bus will leave: it depends on how many people have to make their way back. More than once people have been left stranded, having to sleep in someone's house.

#### 5.4.2.5 IAA'S SUPPORT BEYOND TRAINING

To support small producers in marketing their products, the IAA pays the cost of transportation to the market the first three or four times that a peasant goes. IAA also supports organic certification: it offers training and funding to certify production as organic. To date, no peasant has done obtained organic certification, but some of them are on their way. Another thing that the IAA does is to mediate between peasants and the Ministry of Foreign Trade and Tourism (MINCETUR). MINCETUR has two pilot projects for rural development: the "chef tour" and "export to the inside". The goal of both is that small groups of peasants supply hotels and restaurants in the area in which they live.

#### 5.4.2.6 CHEF TOUR

The chef tour, as its name suggests, is a tour through small producers farms specifically for chefs with the goal that these chefs will order products from these farms. Out of the 20 chefs that have visited the farms of the members of this learning group, only one, from the restaurant "Greens", has requested that they supply them with organic vegetables.

#### **Greens**

"Greens" is a high-end restaurant, located in the historic centre of Cuzco that offers mostly vegetarian dishes made from organic products. A dinner with an appetizer, a main course and a drink costs 3 soles in the MCJM and from 5 to 15 in the historic centre of Cuzco, but in "Greens" only one dish will cost around 40 soles.

The difficulty with becoming providers of this restaurant is that they cannot comply with the minimum quantities nor with regularity in the deliveries, required by the restaurant. Regarding prices, the IAA offers help in the negotiations, but is

the responsibility of peasants to stabilize the levels of production for accessing the market.

#### 5.4.2.7 TRAINING - THEORY

María passes around an attendance sheet. Although most of the peasants can speak Spanish, most of the time they speak Quechua. It is around 10:30 am, and there are approximately 20 people (women, men and children). The training is on organic fertilizers begins.

-María: What is the purpose of this training? (She answers) It is to improve the productivity of the land, to increase production. It also enhances the possibility of gaining the organic producer certification, which would help you to enter to differentiated markets, which pay higher prices. People keep arriving.

She asks whether they have Biol at home (an organic pesticide made in the previous training) ... It seems that nobody has. With her infinite patience, she explains to them that it is necessary to have a bottle at home, in order to get the organic producer certification. María talks about organic pesticides and fertilizers, although casual the conversation is very informative. Finally, she passes out handouts with instructions for making organic pesticides and fertilizers and reads them aloud.

#### 5.4.2.8 TRAINING – PRACTICE

The second part of the training, the practice, is organized as follows: María asks participants to divide themselves into three groups and appoints a leader for each group. Then, she gives general instructions and each group goes to the house of

one of three volunteers. The volunteers are members of the group that offered to be volunteers in the previous meeting. They are tasked with providing materials to make organic-fertilizers. In return, they will keep the fertilizers made after the training. María, Naomi and Delfina are the hosts of this training, the volunteers. In their houses it is evident that they have implemented Sierra Productiva's technologies.

While the three groups are making organic fertilizer, María visits them one by one. Finally, the organic fertilizer "bocashi" is finished in the three host houses. In 15 days it will be ready to be used, in the meantime, the pile of bocashi should be turned around once per day. This organic fertilizer is superior to compost as compost takes three months to complete, whereas "bocashi" is ready in only two weeks. Everybody takes a break for lunch and agrees to meet again in one of the hosts' houses in two hours to prepare organic pesticide together.

María (IAA technician), a couple of peasants, a yachachic (from another district that came to this training sponsored by the IAA), the driver and I have lunch at the local restaurant. During the lunch we talk about the situation of the peasantry in Peru. They explain to me that they do not own the land; they are owners of the arable land up to 40cm down. If they come to find mineral resources, they will simply be displaced from their land, a situation that is not uncommon. They also tell me that policies for the sector change from government to government and which makes them feel uneasy in each and every political turnover.

The original plan for this training was to prepare "bocachi", "biol" and pesticide, but since the training began late, there's no time for making the three of them.

María asks them whether they prefer to make the biol or pesticides. The decision is unanimous: pesticides.

María explains that the type of pesticide they should use depends upon the type of bug they need to exterminate are. In the previous month's training, the group was given the task off looking for repellent plants and bringing them to this meeting. From their colourful blankets, they take out repellent plants they have found. María opens a brochure, names aloud the available repellent plants and details the pesticides that can be prepared out of them (as well as the insects they can kill). Then, once again she reads aloud a list of repellent plants, as if she was passing an attendance sheet, participants answer her saying whether they have brought the named plants or not. She then talks about other pesticides that can be prepared beyond those for which “ingredients” are currently available. All together, in a plastic bucket the participants prepare a pesticide for general use. Once the training finishes, everybody takes some of the mixture in PET bottles. The picture below was taken during the training on June 25, 2012.

IMAGE 5-1 VEGETABLE GROUP, TRAINING



Source: Photo taken by author

### 5.4.3 THE GUINEA PIG BREEDERS GROUP TRAINING AND “INSIDE EXPORT”

This month, the content of the training for the Guinea pig breeder’s group is about supplying a governmental event called “inside export”. In this event, Sierra Productiva’s product will be displayed. María and Lucía, the IAA technicians of Yanaoca, are in charge of the training and gathering the products to be displayed.

#### 5.4.3.1 INSIDE EXPORT

Inside export is a pilot project of rural development organized by MINCETUR. Like “chef tour”, its aim is to encourage small producers to become suppliers of restaurants and hotels in their areas.

The launch of this program consists of a buffet, in which some of Sierra Productiva’s products will be displayed and tasted; the MINCETUR will pay the peasants for these products. At this event, in addition to MINCETUR’s authorities, IAA technicians and yachachics, the President of Peru will attend.

<p>The launch of this program was scheduled for Thursday (June 28<sup>th</sup>), but on Wednesday (June the 27<sup>th</sup>) it was postponed until Saturday (June 30<sup>th</sup>). However, on Friday (June 29<sup>th</sup>) it was postponed again...</p>
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#### 5.4.3.2 SLAUGHTER, CLEANING AND VACUUM PACKAGING OF GUINEA PIGS TRAINING

This month, in addition to María, a professional chef will be conducting training. The aim of this training is that participants learn how to pluck; cut and vacuum pack Guinea pigs. To improve the packaging means not only to add value but also the possibility of accessing differentiated markets. The training lasts two days and

about 20 peasants of the learning group of Pampamarca's community attend. Not all of them stay for the entire training, though.

The training ends when all Guinea pigs brought by the group are plucked, chopped and vacuum packed. These Guinea pigs will be displayed and tasted in the launch of Inside Export. Needless to say that these Guinea pigs (plucked, chopped and vacuum packed) are sold at a higher price than when sold alive or dead, because of these value added processes.

#### 5.4.3.3 THE TRAINING IN IMAGES

The members of the learning group bring live guinea pigs to the training. They're going to slaughter, clean, pluck and package them according to the instructions of María and the chef. The training takes place between the patio and the kitchen of IAA offices. The pictures below were taken during the training on June 27, 2012.

IMAGE 5-2 GUINEA PIGS GROUP, TRAINING



Starting from the top row and from left to right: peasant woman slaughtering a Guinea pig while others wait their turn, peasant woman slaughtering with the assistance of the chef, women cleaning Guinea pigs, women plucking Guinea pigs, and woman holding vacuum packaged Guinea Pig.



#### 5.4.4 CHEESE, ALODIA 'S YOGURT AND THE MILK CARAMEL OF LUCÍA

For the launch of Inside Export, and in addition to Guinea pigs, MINCETUR asks the IAA with supplying other Sierra Productiva products. The selected products are: cheese, yogurt and milk caramel. Lucía, the IAA technician in charge of dairy products training, is coordinating the gathering of products. As in the case of Guinea pigs, cheese for the event was made in the training of the dairy products group, a few days prior when I went to the offices of the IAA. The yachachic Alodia, considered "master yogurt maker", is in charge of the yogurt, while Lucía prepares milk caramel with milk purchased from local producers.

#### 5.4.5 COMMUNITY CAPACITY BUILDING AND THE STRATEGY OF TRAINING BY LINE OF PRODUCTION/ LEARNING GROUPS

Hereafter, the experience of training by line of production is summarized in terms of its contribution to the community capacity and the strategic components that it stimulates; all the elements of community capacity are summarized in Table 5-6.

##### 5.4.5.1 CHARACTERISTICS OF COMMUNITY CAPACITY

###### 5.4.5.1.1 SENSE OF COMMUNITY

The members of the vegetable group of Pampamarca prepare organic pesticides and fertilizers, with the aim of increasing produced quantities and fulfilling the requirements for certifying their products as organic.

Members of the Guinea pigs breeders' group pluck, clean, chop and package their Guinea pigs to supply the MINCETUR.

#### 5.4.5.1.2 COMMITMENT

To sell their products, producers must meet a certain minimal amount of production. Individually they cannot achieve the abovementioned levels of production, so they work together to meet them as a group.

#### 5.4.5.1.3 ABILITY TO SET AND ACHIEVE OBJECTIVES

Trainings have specific short-term and long-term objectives. IAA technicians encourage, guide and support peasants to set and achieve their goals. In the July 2012 trainings, members from the Guinea pigs breeders and dairy products learning groups learn how to add value to their products and moreover, they sold them to the government for the Inside Export event.

#### 5.4.5.1.4 ABILITY TO RECOGNIZE AND ACCESS TO RESOURCES

Peasants utilize the IAA to support them in marketing their products with regard to price negotiation, cost of transportation, and training and information for conducting value addition activities, such as certifying vegetable production as organic.

### 5.4.5.2 STRATEGIC COMPONENT OF COMMUNITY CAPACITY

#### 5.4.5.2.1 HUMAN RESOURCES

Vegetable group growers learn how to make organic pesticides and fertilizer; Guinea pig breeders learn how to pluck, chop, clean, and vacuum package their Guinea pigs. And dairy product group members learn how to make and vacuum package cheese.

#### 5.4.5.2.2 ORGANIZATION

Each learning group is made up of an association of small producers. Peasants that participate in the same production activity and live in the same community, get together to learn how to improve, add value to their products and sell them collectively.

#### 5.4.5.2.3 NETWORKING

The learning groups promote networking within and outside the community. Within the community, peasants that are working in the same line of production end up together in the trainings and as members of the same small producers associations. On the other hand, the IAA links members of learning groups to government promotional programs, whose aim is to connect small producers with potential buyers.

TABLE 5-6 COMMUNITY CAPACITY AND TRAINING BY LINE OF PRODUCTION/ LEARNING GROUPS

Characteristics of Community Capacity	Sense of Community	Members of the different groups train together and sell their products together.
	Commitment	To sell their products, producers must meet a certain minimal amount of production. They cannot do it individually so they work together to meet the minimum levels as a group.
	Ability to set and achieve objectives	Peasants from learning groups add value to their products and sell them to the government.
	Ability to recognize and access to resources	Peasants utilize the IAA to support them in marketing their products and to provide training for adding value to their products.
Strategic component of	Human Resources	In the trainings, peasants learn how to add value to their products.

Community Capacity	Leadership	-
	Organization	Learning groups are also small producers associations.
	Networking	The learning groups promote networking within the community among small-scale producers and outside the community, through links to government promotional programs, whose aim is to connect small producers with potential buyers.

Source: Created by author.

#### 5.4.6 TRAINING BY LEARNING GROUPS/ LINES OF PRODUCTIONS, A SUMMARY

The trainings by learning groups aim to commercialize Sierra Productiva's products, adding value to them while encouraging small-scale producers to form associations.

This intervention mainly enhances two of the strategic components of the Community Capacity: Organization and Human Resources. As was detailed in the previous subsection, this intervention leads to further development of the community capacity.

### 5.5 SUMMARY OF THE DEVELOPMENT STRATEGIES

This chapter goes through the different strategies followed by the IAA in the MCJM for promoting its development. To some extent, all of them are related to leadership development, knowledge transfer, and technology implementation. While leadership is part of the strategic component of community capacity, knowledge transfer and technology implementation are closely related to human resources, another strategic component. Other strategic components, such as

networking and organization, are also stimulated, although to a lesser extent. In turn, the stimulation of the strategic components boosts the features of the community capacity, allowing the introduction of more complex and well being policy structures. From the Peasant School to the training by learning groups, each strategy seems more complex than its predecessor. What is more, none of the strategies seem to be possible without the strategies that precede it. In other words, communities of the MCJM seem to become more capable after each intervention.

The milestones in the process of development of the MCJM are the shift from agriculture to livestock production, the improvement of the households and the environment, the increase in the volume and variety of food produced, and the commercialization of Sierra Productiva's products.

The shift from agriculture to livestock production is a process that began with the Peasant School; Its members participated in the Pacha Mama Raymi, the spearhead of the shift from agriculture, later on some of them participated in the PIC II and became the first peasants of the MCJM that considered that best lands, those with irrigation, should be for livestock production, rather than for agricultural production. The IAA shared this vision with them and they shared it with their communities, by bringing up the topic in the general assemblies, discussing it with their neighbours, and finally organizing the Dairy Cow Contest in their communities.

These peasant leaders trained in the Peasant School were later trained on farming, livestock production, environmental conservation and household improvement in the frame of the Pacha Mama Raymi first and the then in the PIC II. These peasant leaders were the first yachachics, and they advocated for the introduction of Sierra Productiva's technologies within and outside their communities. They shared the vision of making a living out of the land while enjoying good living conditions. Yachachics encouraged other peasants to introduce Sierra Procuictiva approach and taught them how to do it.

Finally, some of the peasants that introduced Sierra Productiva's technologies, and were made "a supermarket out of the backyard", little by little began selling their products, and learning how to add value to them.

Hereafter Table 5-7 summarizes the previous mention strategies, their features, objectives and outcomes.

TABLE 5-7 DEVELOPMENTAL STRATEGIES FOLLOWED BY THE IAA IN THE MCJM, SUMMARY CHART

Strategy	Features	Objectives	Outcomes
Peasant School	On site centralized school for peasant leaders.	Develop leaders.	A dispersed group of well-informed and committed communitarian leaders that will be the spearhead in the introduction of the following developmental strategies and the link between the IAA, peasant families, the FDCC and peasant leaders from different communities.
Training by contest Pacha Mama Raymi	Training on irrigation and livestock production, agriculture, and environmental organization.	To overcome the reluctance of people to introduce technologies. To promote the shift from agriculture to livestock production as the main economic activity of the MCJM.	Increase in the motivation and first steps in the shift from agriculture to livestock production.
Training by contest Dairy Cow	Informal spread of information about good practices in dairy product production and cow breeds.	To improve dairy products production	Improvement of livestock and dairy products.
Training of yachachics	Training in productive techniques and selection of	To come up with an integral proposal for overcoming the underdevelopment	A group of technological leaders that will be in charge of transmitting (and support in

	<p>technologies of the comprehensive approach “Sierra Productiva”.</p> <p>Theoretical and practical training for peasants by peasants in the Peasant School and in the field.</p>	<p>in a participatory way.</p> <p>Spreading of the Sierra Productiva proposal.</p>	<p>the introduction of) Sierra Productiva.</p> <p>A network of technological leaders inside and outside of Cuzco.</p>
<p>Training by learning group</p>	<p>Market oriented training by technicians for small producers organized by community and line of production</p>	<p>The addition of value to Sierra Productiva’s products and access to the markets.</p>	<p>The organization of groups of small producers looking to improve their products and sell them together.</p>

Source: Created by author.



## Chapter 6: COMMUNITY CAPACITY CASE STUDY, THE DAIRY PRODUCT PRODUCERS OF COLLIRI COMMUNITY

John Tacussi, president of the Colliri community and the association of dairy farmers, pointed to a green hill where cows were grazing told me: ‘Before, this place was all brown, there was no water, we hadn’t got anything to eat, you don’t know how sad it was’ (Interview with Juan Tacussi, 27 June 2012).

Colliri is one of the 11 communities of MCJM. This community has 102 inhabitants that before the implementation of Sierra Productiva’s technologies used to make their living out of agriculture. Nowadays every family in the community has implemented the set of technologies to some extent and the community has become a dairy product production area.

This chapter attempts to describe the policy structure of the community of Colliri, as well as its community capacity attributes; arguing that this community has become more capable since the introduction of Sierra Productiva, with the consequent impact on its dwellers’ wellbeing.

## 6.1 THE POLICY STRUCTURE OF THE COMMUNITY OF COLLIRI

The policy structure, as I mentioned in the literature review chapter, is the connection between means and ends and contains the activities performed by the members of the community to achieve their goals. As I also mentioned in the literature review chapter, there is a positive relation between the complexity of the policy structure and the level of capacity of a community: the more capable a community is, the more sophisticated/value added the policy structure that this community can introduce, and the more sophisticated/value added the introduced policy structure is, the more capable this community will become.

The aim of this section is to describe the policy structure of the community of Colliri after the introduction of Sierra Productiva, but also to inquire as to how the policy structure has changed as a consequence of the introduction of the previous mentioned developmental approach.

To achieve this, and in the frame of a focus group, I will conduct a policy structure related questionnaire to selected members of the community, and I will inquire about collective activities to selected participants.

### 6.1.1 THE POLICY STRUCTURE OF THE COMMUNITY OF COLLIRI AFTER THE INTRODUCTION OF SIERRA PRODUCTIVA

To clarify the policy structure of the community of Colliri after the introduction of Sierra Productiva, the strategy is to conduct a questionnaire to selected members of the community in the frame of a focus group.

The day of the focus group I feel poorly prepared, a bit incompetent and I have my doubts about the call. To make things worse, we are late, the sky is threatening to rain and if that happens nobody will attend to the meeting. Half-hour late, we arrived at the place and still not even half of the people are there.

By seven pm almost everybody has come and we are about to begin. I introduce myself, explain the purpose of the activity, thank everybody for its time, distribute the forms, and ask the participants to fill them out with some basic personal information such as name, age and affiliation. The participants complete the form with great difficulty.

The first part of the activity, the group questionnaire regarding the policy structure, takes place through informal questions asked in Spanish to the whole group. At the beginning nobody answers so I try different ways of asking the same while trying to be as concrete as possible. The reserve for answering is especially true in the case of women: of the two of them, one is not only saying nothing but is also sitting in a corner outside the group, taking care of things such as preparing coffee and

organizing chairs. A couple of times I ask her opinion, but since she doesn't seem comfortable talking, I stop asking her. Given the traditional role of women in Peruvian society low female participation was a possibility. However, after seeing more women than men participate in trainings, I wrongly assumed that more women would attend and participate in the focus group.

María begins to translate to Quechua and, although all of them speak Spanish, the translation made participants feel more comfortable and they begin answering the questions. In spite of the relief provided by the help of María, I'm a little afraid of she is leading answers. By the end of the activity translations to Quechua were needless and I feel that there is a good rapport between the participants and myself.

The first question that I ask the group, before starting with the questionnaire is: What is Sierra Productiva? Nobody answered. After a while, one of the participants asked María, what Sierra Productiva was and María answered:

-‘Companions (here everybody uses this word before the name, they did not call me this until some days before leaving), just a little to open your minds, we are building the second phase of Sierra Productiva. What does it mean? Who has begun to cultivate grass? IAA? Who has installed the sprinklers? We began sowing grass, sprinkler irrigation, orchards, forestry, small animal husbandry, laying hens.... These ten technologies were the first stage of Sierra Productiva, now, with this new project we are doing the second stage of

Sierra Productiva: improved kitchen, eco bathrooms ... All these activities are Sierra Productiva, just for clarification. Now I believe that everybody knows what Sierra Productiva is. What is Sierra Productiva for us? This is the name of the project; maybe you did not know it' (Fieldwork note, 25 June 2012).

After this, I conducted the questionnaire aimed at clarifying the policy structure. Table 6-1 below contains all the questions and the answers provided by the participants.

TABLE 6-1 POLICY STRUCTURE OF THE COMMUNITY OF COLLIRI

Component of the Policy Structure	Question related to the policy structure	Answers
Final Outcome (Change in society)	What do you want/do you think you will achieve with Sierra Productiva?	-To improve the economy of the place and our income. -The family is producing better and selling products at a higher price -To produce Guinea pigs, cattle and vegetables. Also to make cheese and yogurt and reach more markets. -To improve our households and therefore our way of living.
Intermediate Outcome	Who should change for that to happen?	-Each one (everybody answered the same and at the same time)

(change in the target group)	How should you change? In what way?	-Personality -The character, the family should be more active, more productive, more trained.
Outcomes (Results of the activities)	What are the outcomes of activities?	-Improved vegetables -Improved households (prettier and cleaner) -Improved way of living. -New products (like milk) -Improved products -Better access to markets -Improved quality of life. -Education for the kids.
Activities	Which are the activities that Sierra Productiva does? Beside the 18 technologies, are there other types of activities? What other things, related to Sierra Productiva do you do? For instance, before implementing a technology... What do you do?	-They name the technologies  -Training (There is a small discussion) -Taking products to the markets -Taking care of the animals and the grass for feeding them. -Festivals and contests
Inputs	What do you need/use to conduct these activities?	The materials for technologies, time, labour, training and willpower

Source: Created by author.

In summary, based on the above answers to the questionnaire, the policy structure of the community of Colliri might be described as follows:

The final outcome of the policy, the envisioned future, is understood (by some of the peasants of the community of Colliri) as the improvement in their living conditions; the improvement of the local economy and the households.

To achieve the envisioned future for the community, these peasants see themselves as the target group. They manifest that they themselves must change (in terms of personality, knowledge, productivity, etc.) to achieve the major goal.

The results of the conducted activities are related to improvements in the production, households, access to markets and quality of life, all of them explicit objectives of Sierra Productiva approach.

When it comes to activities, they mention activities directly related to Sierra Productiva and some activities are more related to other IAA's strategies, such as contests and training by learning groups (taking products to markets).

The inputs mentioned are quite reasonable and expected (materials, time, labour and training) except for one that I would like to highlight "willpower".

Finally, the above picture was taken at the end of the activity, on June 25, 2012.

IMAGE 6-1 MEMBERS OF THE COMMUNITY OF COLLIRI PARTICIPATING IN THE FOCUS GROUP



Source: Photo taken by author.

### 6.1.2 COMMUNITY ACTIVITIES OF COLLIRI AND THE CHANGES IN THE POLICY STRUCTURE

The members of a community perform different activities to achieve their goals, these collective activities, as it was mentioned in the literature review chapter, are contained in the policy structure. The complexity of the latter is positive related to the capacity of the community.

In order to clarify the policy structure of Colliri, beyond Sierra Productiva, and in the frame of the in-depth-interviews-to-focus-group-selected-participants, I asked Nicanor, Ruben, Juan y Luis to tell me about the communal activities that take place in their community. Their answers are summarized in Table 6-2.



TABLE 6-2 COMMUNITY ACTIVITIES

Type of Activity	Community Activity	Periodicity
Political	Communal Assembly: ordinary and extraordinary	Monthly
Communal Work	Greenhouse Forest Forestation Roads fixing	Monthly <sup>1</sup>
	Cleaning irrigation channels	Twice per year
Social	Community birthdays and other celebrations.	
Economical	Meeting of the Association of milk producers “Tupac Amaru” (Colliri community, Yanaoca and Hilaiwa).	Monthly
	Communitarian selling of milk to Tungasuka factory	Dairy
	Association of Guinea pigs and cattle producers: training and meetings	Monthly
	Monthly communitarian selling of Guinea pigs	Monthly
Environmental	Water assembly of 4 communities: Colliri, Pampamarca, Hilaiwa and Pavellones	Twice per year

Source: Created by author.

The collective activities that take place in the community of Colliri can be classified into political, communal work, social, economical and environmental. The political

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<sup>1</sup> This work is monthly for everybody and takes place every Thursday. The president of the community should attend weekly.

activities are previous to the introduction of Sierra Productiva, and the same can be said about social activities. Whereas economical activities are directed related to the introduction of Sierra Productiva approach and the training by learning groups. Regarding to the environmental activity, although related, this activity would exist independently of Sierra Productiva.

In summary, the policy structure of the community of Colliri has been transformed since the introduction of Sierra Productiva's approach into a more complex policy structure. Therefore, and according to the literature, the Colliri community capacity should also have improved. In the following section, the attributes of the capacity of this community are examined.

## 6.2 THE ATTRIBUTES OF THE CAPACITY OF THE COMMUNITY OF COLLIRI

This section aims to examine the attributes of the community capacity: sense of community, commitment, ability to set and achieve objectives and ability to recognize and access to resources of the Colliri community. The first three previous mentioned attributes will be examined through in depth interviews with selected participants of the focus group, while the last attribute, ability to recognize and access to resources, will be clarified through a group mapping, conducted in the frame of the focus groups.

Regarding to clarifications of the attributes, -with the exception of the ability to recognize and access to resources-, the original plan was to use the individual questionnaire responses as a small survey and summarize the answers; but when I read the answers, it was hard for me to understand them, so I changed the plan. For the purpose of in-depth interview, the selected participants were the most enthusiastic or those whose questionnaire responses were the most complete. To include yachachics, peasants, and a communal authority was also a consideration. Then I showed this selection to María, who contacted Nicanor and Ruben (selected candidates) and asked them to go with me to look for the others listed, the next day. I could only interview four out of the seven that I have planned, due to complications with communication.

#### 6.2.1 IN DEPTH INTERVIEWS

The interview dynamic was as follows: First, an explanation of what I was going to ask, and then a review of the individual questionnaire of the focus group. After that, I showed them the map they drew and asked them to explain it.

The following Table 6-3 contains the outcomes of the questionnaire, including the question, the attribute that it is related to and the answers, respondent by respondent.

TABLE 6-3 CHARACTERIZATION OF THE COMMUNITY CAPACITY'S ATTRIBUTES OF COLLIRI

Community Capacity Attribute <sup>2</sup>	Question	Answers
Sense of Community	Do you feel that you have something in common? What is it?	-Nicanor: 1. Communal assemblies. 2. We are proud of the cultivated grass and the water.
	Is there anything that everybody is proud of? What is it?	-Ruben: 1. In the community of Colliri we all do agriculture and take care of cows. 2. Proud? We “are” because we work for us and we produce our food. We are proud because in the future we will better.
		-Juan: 1. Our productive activities and to work with the family in the livestock, agriculture and in the house. 2. Of the selling of our products and the familial income
		-Luis: 1. We work in the orchard in with our animals. 2. We are all proud of the natural resources and the animals of the community
Commitment	Who does SP? Of whom is Sierra Productiva?	-Nicanor: 3. IAA and us. 4. Work and effort are needed to be part.
	What would you change in Sierra Productiva if you stop working? What	-Ruben: 3. Sierra Productiva is from the peasants that cultivate the land. 4. Land need to produce to put into practise more theoretical and practical training. And the man should make an effort, have willpower and work

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<sup>2</sup> The ability to recognize and access to resources is described in the following section, “Mapping the Community of Colliri”

	is needed to be part of Sierra Productiva?	hard. -Juan: 3. Sierra Productiva is of the family that applies the technologies. 4. To be part of Sierra Productiva training for the family is needed. -Luis: 3. IAA and families. 4. To work the technologies in the family.
Ability to set and achieve objectives	What do you have with Sierra Productiva that did not have before? How was it that you decided that you wanted this instead of a different thing?	-Nicanor: Biogas, eco bathroom, training, organic fertilizers, etc. The IAA offered to us. -Rubén: Cultivated grass, organic fertilizers, eco bathroom, making of cheese and yogurt, etc. All done with our family The IAA offered to us. -Juan: Cultivated grass, training, vegetables, orchards, making of cheese and yogurt, food security, etc. The IAA offered to us. -Luis: Orchard, eco bathroom, cultivated grass, etc. We haven't got so much food in the past. The IAA offered to us.

Source: Created by author.

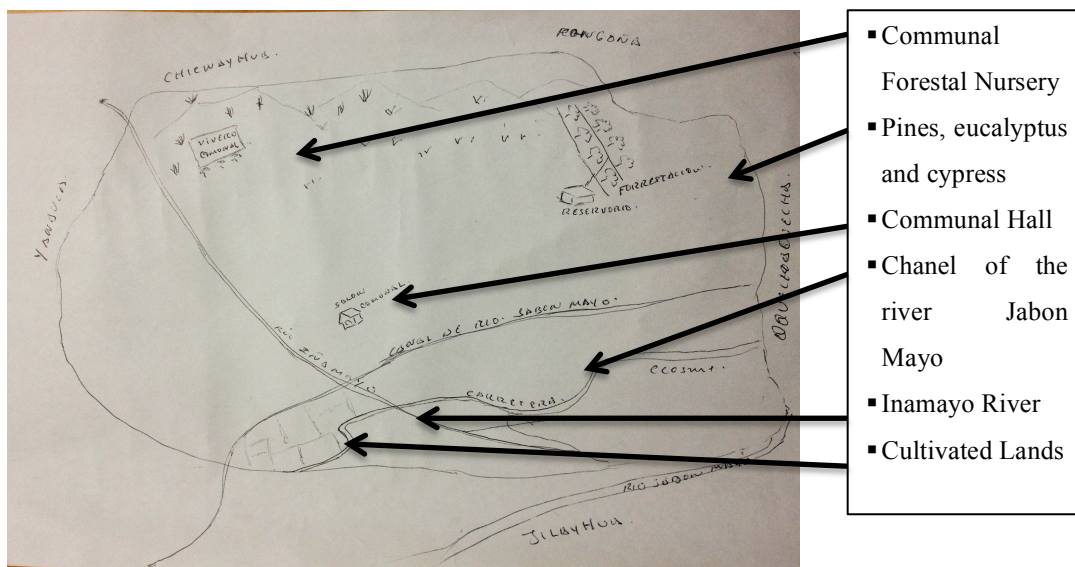
### 6.2.2 MAPPING OF THE COMMUNITY OF COLLIRI

The aim of the mapping is to clarify the communitarian ability to identify and access to resources. This is one of the activities of the focus group, and I requested that they divide themselves into two groups to draw two maps of the community of Colliri and its resources. Due to time constraints, it is not possible to ask the participants to explain the map they have just drawn. Therefore, during the in-depth interview with

selected participants of the focus groups, I asked to the interviewee to explain the maps to me. This activity turned out to be a sort of icebreaker; moreover, everybody was very enthusiastic about drawing the maps accurately.

The 110 families of Colliri community make their living out of agriculture, livestock and dairy product production. Agriculture and livestock is for self-consumption while dairy products are either consumed in the household or sold. The sales might take place in local markets every one or two weeks, or daily to the Tungasuka factory. The livestock and dairy product production was promoted through the implementation of Sierra Productiva’s technologies. Hereafter, in Image 6-2, one of the two maps, and a summary of the descriptions provided by some of the peasants that drew them.

IMAGE 6-2 MAP OF COLLIRI



Source: Photo taken by author

The communal forestal nursery began between 2002 and 2003, sponsored by the municipality of Colliri, the IAA and another NGO, Bor Vision. The latter provided training while the municipality and the IAA provided the necessary materials. In the forestal nursery, dwellers of Colliri grow pines, eucalyptus and cypresses' seedlings. Wood from these trees is utilized for housing construction and as firewood.

The channel of the river Jabon Mayo is used to feed the sprinklers that irrigate the grass and the orchards. Its construction began in the mid 1980's and finished around the beginning of the 2000s, the funding came from the municipality and the IAA while labour came from the community. The Inamayo River also feeds the irrigation channel.

Communal parcels are 3000 square meters of cultivated grass for every member of the community. Cultivated lands are parcels with irrigation; each family of the community has access to one parcel to grow vegetables.

In the stadium there are facilities for playing sports and for the children to gather and play. The communal hall is the place for the communal assembly, producers' meetings, trainings and seminars.

### 6.2.3 SUMMARY OF THE ATTRIBUTES OF THE CAPACITY OF COLLIRI COMMUNITY

In this section, and based on the in depth interviews and the mapping, the attributes of the capacity of the community of Colliri are summarized.

#### 6.2.3.1 SENSE OF COMMUNITY

The sense of community in Colliri, according to the interviews, seems to be highly related to the economic activities: livestock production and farming, since all the participants pointed them out as not only what they have in common, but also what they are proud of. In other words, the introduction of the Sierra Productiva approach in this community led to an increase in the sense of community and therefore an increase in its capacity.

#### 6.2.3.2 COMMITMENT

Interviewed peasants recognized themselves as stakeholder and occupied the role when applying and producing Sierra Productiva's technologies. In this case, it can be expected that the capacity of the community grew.

#### 6.2.3.3 ABILITY TO SET AND ACHIEVE OBJECTIVES

Interviewees' answers suggest that goals in this community have been set by the IAA, rather than by peasants. However, the goals of implementing the technologies have been achieved.

#### 6.2.3.4 ABILITY TO RECOGNIZE AND ACCESS TO RESOURCES

The participants of the focus groups seem to face no difficulties in identifying and accessing local resources, given how easy it was for them to draw and explain their maps, suggesting that Colliri community capacity has been further developed.



### 6.3 SMALL CASE STUDY, PRELIMINARY CONCLUSIONS

The argument behind this chapter is that Colliri community has become more capable as a consequence of the introduction of Sierra Productiva's approach. As was mentioned before and according to the literature review, the more capable a community is, the more complex the policy structure that can be implemented and the complexity in the policy structure, in turn, allows further development of the community capacity.

The change in the policy structure of Colliri community into a more complex one, together with the influence of Sierra Productiva's implementation in its sense of community and commitment -and to a lesser extent in its ability to set and achieve objectives and to recognize and access to resources- suggest that the introduction of the developmental approach has influenced both: the complexity of policy structure and the attributes of the community capacity.

## Chapter 7: CONCLUSIONS

This research goes through the different developmental strategies followed by the MCJM by the IAA. These strategies are related to leadership development and knowledge management activities, that are either the foundational brick of Sierra Productiva or its reinforcement: The Peasant School –developing communitarian leaders- the organization of training by contests –a way to stimulate peasant participation- the development of the Sierra Productiva approach -a comprehensive set of technologies to improve nutrition, sanitation, housing conditions and the environment- and its replication -through the figure of the yachachic, followed by the training by learning group, to support peasants in the commercialization of the agricultural and livestock breeding surplus, including transformed products. Generally speaking, all of these strategies stimulate the strategic components of the community capacity. Among them, leadership and human resource development are the most stimulated by the aforesaid strategies. The other components, association and networking, are also stimulated, although to a lesser extent.

The strategy of the Peasant School is clearly a leadership development strategy, characterized by the engagement approach, since they learn by doing, targeted to a group of individuals, this -according to the literature- seems to be most suitable for community capacity development. Later on, the members of the Peasant School will participate actively in other development strategies. Actually, they will be the

spearhead in the introduction of the following development strategies. Such as in the case of Pacha Mama Raymi, these leaders were the first in their communities to receive training in agriculture, irrigation and livestock production, organization, and environment. That in turn makes them the first to introduce livestock production in the MCJM, which will be widely spread in the MCJM with the implementation of the Sierra Productiva approach. In line with the efforts of developing livestock production -in a traditionally agricultural area- the Dairy Cow Contest was introduced in the different communities of the MCJM with the support of these communitarian leaders. Some of them will become the first yachachics, those volunteers that participate in PIC II, to choose and develop the technologies that will be part of Sierra Productiva.

The training by contests turned out to be an effective way to motivate peasants to introduce new productive practices and to improve the current ones. Among other strategic components, this strategy strongly stimulates the human resource development and the organization, (as proved by the settlement of the Association of milk producers “Tupac Amaru” in the Community of Pampamarca). In turn, this made the first implementation possible and then the improvement of stockbreeding and dairy product production and also the introduction of new and improved agricultural practices in the MCJM.

With the Pacha Mama Raymi, peasants were training in irrigation and stockbreeding, agriculture, environment and organization. Participants of different communities

competed against each other and the day of the contest was an event where dwellers could gather and get to know each other, while enjoying the after contest party. The Dairy Cow Contest was also a space where people could meet each other and enjoy, creating bonding at a community level, provided that the contest wasn't organized at the level of MCJM. With this contest the production of milk improves in terms of both quality (cleaner milk) and quantity. This is the direct consequence of the enhancement of the ability to set and achieve objectives -breeders began to plan how to improve their livestock in order to milk more litres- on one hand and to identify and access to resources on the other –they looked for support within the IAA for advice regarding what they should do to improve their livestock. The sense of commitment is enhanced as well since these peasants are facing the same challenges.

The development of the comprehensive approach to Sierra Productiva, together with the development of the figure of the yachachic, stimulates mainly the human resource development and leadership. Furthermore, it also stimulates networking, since yachachics are, at the beginning, a group of leaders of different communities of the MCJM, and then, a group of leaders of different communities beyond the boundaries of Cuzco.

This cadre of knowledgeable and committed communitarian leaders participate in the development of the technologies by trying them on their own parcels and making suggestions, especially in the area of agriculture, where the settled practices come from a mix of current practices, obsolete practices (like the case of the growing native

potatoes seeded with the sprout) and more modern technics. In the development of Sierra Productiva technologies –with the only exception of those related to renewable energies- the yachachics were the protagonists. Although the IAA played a strong role as well, it was more as facilitator, while the yachachics were who tried everything and decided what did and didn't work. Even the shift from agriculture to stockbreeding was decided by the yachachics, although the IAA guided the decision. The yachachics were also in charge of spreading the experience, although again this was done with strong support of the institution. Outside the MCJM the spread of Sierra Productiva is possible due to the network of leaders created through the Peasant School. These leaders are highly committed to the wellbeing of their communities as proved by the time given to the cause for free. The introduction of Sierra Productiva is done collectively, enhancing the sense of community, the ability to recognize and access to resources and the ability to set and achieve objectives; taking the implementation of the irrigation system as an example of this, peasants have to find available sources of water and made them theirs by building channels that gather the water into pools that feed the sprinklers. The peasants that will share the pools do in-group all these activities.

When it comes to the training by learning groups, among the strategic components of the community capacity, it mainly stimulates the human resource development and the organization of the peasants into small producer groups. In these trainings IAA's technicians provide training on how to add value to products, but the aim of these

trainings doesn't end there, the technicians also accompany the peasants in the process of actually selling their products by finding markets and supporting the peasants in overcoming the issues that prevent them from accessing these markets, such as the cost of transport, the lack of scale, etc. Members of these training groups need each other to achieve their goals provided that they cannot sell their products individually, due to the small-scale production. The commitment and the sense of community in the participants are enhanced.

Each of these strategies allow sophistication of the policy structure, making it more value added than the previous one, with the consequent improvement in the living conditions of rural dwellers. The Peasant School allowed the development of leaders that would become the spearhead of the following developmental strategies implemented by the IAA. The training by contests, initiated the peasants in some of the practices that would be later on picked up by the Sierra Productiva approach, whose intermediate outcomes are increment in the quantity and variety of food produced (besides improvement of households and sanitation conditions and environment). Ultimately, the training by learning groups facilitates the commercialization and addition of value to these products, integrating peasants to the markets.

Finally, the changes in the policy structure of Colliri community into a more complex one, together with the influence of Sierra Productiva's implementation in its sense of community and commitment, -and to a lesser extent in its ability to set and achieve

objectives and to recognize and access to resources-, suggest that implemented developmental strategies –oriented to leadership and human resources- lead to further development of the community capacity; with the consequent improvement in the well-being of rural dwellers.

## 7.1 RECOMMENDATIONS AND PROSPECTS FOR FUTURE RESEARCH

This research was conducted in the MCJM, as I have mentioned before, this is the place where the pilot project of what today is known as Sierra Productiva took place. In this sense, this experience is different from others that also have implemented Sierra Productiva. Furthermore, although the IAA operates in more than 10 departments of Peru, it is in the MCJM where its presence is the strongest: there are two offices in the MCJM, which are two hours from the headquarters, in Cuzco. There are other experiences of Sierra Productiva implementation whose process was different. Among these alternative experiences of implementation of Sierra Productiva, there are two remarkable cases: the case of the department of Huancavelica -where the IAA doesn't have a presence at all and its communitarian leaders were trained by yachachics and got the funding for the implementation through municipalities and a participatory budget and the case of Santiago de Chuco - where the yachachics negotiated with authorities of the Barrick Gold Corporation, a

mining company, to fund Sierra Productiva's technologies in the frame of social responsibility.

For academic contribution, besides examining the capacity development of communities that have implemented Sierra Productiva with lesser intervention of the IAA, this research suggests, as further study, the clarification of the role played by the transmission and creation of knowledge for community capacity building, in communities implementing Sierra Productiva.



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## APENDICES

### Appendix 1: Focus Group Questionnaire

The following activity is voluntary and comprises two parts: in the first part we will discuss about Sierra Productiva as a political intervention. The second part is a questionnaire to be answered individually. There are no right answers. Please answer sincerely, privacy of responses will be respected. Thank you very much for your time.

- i. Date.....
- ii. Name and Family Name.....
- iii. Affiliation.....
  - Peasant
  - Peasant Yachachic
  - Communal Authority                      Organization.....
- iv. Community .....
- v. Genre
  - Masculine
  - Female
- vi. Age.....

## **Individual Questionnaire**

Remember that there is no right answers and that your privacy will be respected.  
Please answer sincerely.

### Sense of Community:

- 1) Do you feel that you have something in common? What is?
- 2) Is there anything of which everybody is proud of? What is?

### Commitment:

- 3) Who make Sierra Productiva? From whom is Sierra Productiva?
- 4) What would change in Sierra productiva if you stop working on it? What is needed to be part of Sierra Productiva?

### Ability to set and achieve objectives:

- 5) What kind of things do you have with Sierra Productiva that you didn't have before? How did it happen that you decide that you wanted to implement Sierra Productiva instead of other alternatives?

### Sense of community:

- 6) Who is responsible for the implementation of Sierra Productiva? How do you organize the work within the community?

### Ability to recognize and access to resources:

- 7) Please draw a map of the community indicating what can be done in each place and with what. You can also include elements outside the community.