

Agroecological Farms: A Living Strategy for Caramanta Coffee Growers in Colombia

by

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DEDICATION PAGE

Dedicado a las comunidades campesinas colombianas a quienes admiro profundamente.

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ABSTRACT

Colombia occupies a prominent position among world coffee producers and exporters. The coffee sector has counted on the support of many institutions; however, this support was not sufficient to effectively face times of crisis for the past twenty years. Some farmers have therefore adopted new strategies such as the substitution or incorporation of new crops. The Caramanta Farmers Association implemented agroecological farms. This system has allowed farmers to diversify their activities and to obtain better trading conditions. This document aims to learn from the Caramanta experience and the comparisons of the conventional and the agroecological system of coffee crops. The research methodology combines bibliographical review and fieldwork. The first chapter introduces some theoretical frameworks on rural development. The second chapter starts the comparative exercise and describes the conventional system. The third chapter analyses the agroecological system. The concluding chapter highlights the importance of a territorial development strategy rather than a sectoral one.

LIST OF ABBREVIATIONS USED

ASAP	Caramanta Farmers' Association (Asociación de Pequeños Agricultores de Caramanta)
Asproinca	Association of Indigenous and Peasant Producers from Riosucio, Caldas (Asociación de Productores Indígenas y Campesinos de Riosucio Caldas)
CAP	Common Agricultural Policy
ECLAC	Economic Commission for Latin American and the Caribbean
ENA	National Agricultural Survey
FAO	Food and Agriculture Organization
FNCC	National Federation of Coffee Growers of Colombia (Federación Nacional de Cafeteros de Colombia)
ICO	International Coffee Organization
IFAD	International Fund for Agricultural Development
LEADER	Liaison Entre Actions de Développement de l'Économie Rurale
OCMAL	Observatory of Mining Conflicts in Latin America
RECAB	Network of Organic Agriculture (Red de Agricultura Biológica)

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CHAPTER 1 INTRODUCTION

During most of the 20th century coffee production led not only the Colombian agricultural economy but also its export sector. Consequently, Colombia occupies a prominent position among world coffee producers and exporters. After Brazil and Vietnam, Colombia is currently the third largest producer and exporter of green coffee (ICO, 2010). However, this outstanding position in coffee production does not mean that Colombian coffee growers have not faced difficult situations over the past 20 years. After the collapse of the International Coffee Agreement in 1989, which held the minimum coffee price per pound at USD \$ 1.20 from 1975 to 1989, the coffee price began to decrease until it reached its most critical point in 2001 at 41.17 US cents per pound (Rettberg, 2010). Other factors that influenced the price decline were the entry of Southeast Asian countries such as Vietnam to the global market, and the substantial improvement of productivity in Brazil. Nowadays, there are other circumstances that have also increased the uncertainty and vulnerability of coffee production in Colombia: fluctuations of the exchange rate, the practice of mono cropping and its subsequent consequences, dependence on costly inputs such as agrochemicals, phytosanitary diseases, and armed conflict. In addition to these difficulties, there are inadequate planning strategies for rural development. Institutional inefficiencies limit the performance of agricultural activities, and constructive solutions to structural problems have been largely lacking.

Over the past decades, the Colombian model of rural development, similar to that in many other parts of Latin America, has been characterized by its dual nature that prioritizes the development of specific sectors, and provides aid assistance and short term solutions to vulnerable rural communities. According to Balcázar (1986), the analysis of sectoral policy instruments used from the early nineteen forties to the mid-nineteen eighties, shows how most of the benefits and products were focused on specific social groups. Subsequently, commercial agriculture was favored and food production discouraged by the rural development model (Bejarano, 1984). Even though, in Colombia, the coffee sector has counted on the support of many institutions, this support was not sufficient to effectively face times of crisis for the past twenty years. Therefore, some farmers have adopted new strategies such as the substitution or incorporation of new crops, the involvement and commitment to new productive activities, the sale of their farms and migration to urban centres, or the production of specialty coffees and participation in fair trade. The Caramanta Farmers Association (Asociación de Pequeños

Agricultores de Caramanta, ASAP), located in Caramanta¹, a town in the province of Antioquia, adopted the implementation of agroecological farms. This system has allowed farmers to diversify their activities, to obtain organic products, and, in the case of coffee, to obtain better trading conditions.

On one hand, the conventional system is characterized by monoculture and intensive use of pesticides and fertilizers. In Colombia, it dates back to the nineteen seventies when the process of modernization of coffee crops was carried out by the National Federation of Coffee Growers of Colombia (Federación Nacional de Cafeteros de Colombia-FNCC) and the government to stimulate coffee production. On the other hand, the agroecological system emerges as a modern farming practice. It allows for crop diversification and it does not use artificial pesticides and fertilizers. It recovers some traditional practices and it also opens new productive opportunities for coffee growers. The main purpose of this system is not only to stimulate agricultural production, but to improve the living conditions of coffee growers and increase and preserve the availability of natural resources. The advantages and disadvantages, the benefits for farmers, and the development prospects are explored through the comparison of the two systems.

Caramanta's case is ideal to carry out a comparative analysis, since it is a traditional coffee-producing area where two types of production currently coexist: agroecological and conventional. The agroecological farms were implemented 10 years ago and currently involve 78 families. This fact mirrors the sustainability of the process and enables the objective assessment of it. Experiences like this one must be studied and documented as they contribute to answering research questions that are commonly studied by scholars: Is sustainable agricultural production possible in agroecological systems? What are the options to reduce vulnerability and improve food security in rural areas? What are the mechanisms to help rural communities find new ways to strengthen their productive activities?

¹ Caramanta is located in Antioquia's southwest, 120 kilometres from Medellín, the province's capital. The main economic activity in Caramanta is farming. In the lowlands, the main activity is extensive cattle farming. Before, these lands were dedicated to sugar cane crops. In recent years, small farmers have gradually sold their lands and new landowners have switched to cattle farming. The town midlands have traditionally been coffee crops zones. There are, as well, sugar cane crops and kitchen gardens. The highlands, by comparison, are characterized by their water resources and the existence of some kitchen gardens.

The methodology of research combines bibliographical review and fieldwork. The bibliographical review focuses on alternative approaches to rural development in Latin America, and the history and performance of coffee production in Colombia and Caramanta. The fieldwork includes interviews, visits to farms, and a survey (see Appendix 1). The interviews were done with ASAP leaders, local authorities, coffee growers, and small farmers. During the field work, there were two visits to coffee crops: one to a conventional coffee crop and the other to an agroecological coffee crop. There were a total of 31 surveys; of which 14 were answered by agroecological coffee growers and 17 were answered by conventional coffee growers. The information gathered was divided into three groups in order to guide the compilation and analysis of information: a) description and analysis of the initial context and situation; b) description and analysis of the process and the context during the process; and c) description and analysis of the current situation and context.

The first chapter's purpose is to introduce some theoretical frameworks, thereby isolating more crucial elements for the comparative analysis and the evaluation of Caramanta's innovative experiences. This section includes three themes: new rurality, innovation, and empowerment. According to the Food and Agriculture Organization (FAO, 2003), "new rurality" is a concept that has been developed in both Europe and Latin America with some similarities and differences, according to the circumstances of each continent. The new rurality places emphasis on the territorial dimension rather than on the sectorial dimension. Consequently, the new rurality conceives the rural environment taking into account the various dimensions of the territory: political, economic, environmental, social, and cultural. This approach goes beyond the sectorial approach that exclusively assumes rural areas as productive or recreation areas. The new rurality advocates rural development with emphasis on territorial competitiveness and not on sectorial competitiveness.

The concept of innovation used in the study is defined by the International Fund for Agricultural Development (IFAD, 2006). The IFAD explains innovations as social constructs, systematically organized, that reflect the interaction of different agents with different interests, goals, and degrees of political and economic power. This concept differs from that which refers to innovation as agricultural research for the implementation of a technology by farmers.

Finally, the crucial role that empowerment plays in rural development will be considered, taking into account that an empowered rural community is able to solve

independently its difficulties, consider new strategies, and reduce negative impacts on their quality of life.

The second chapter starts the comparative exercise. First the coffee production chain is described within the Colombian context and the coffee sector performance during the last three decades. Next, the current situation of traditional coffee growers in Caramanta is analysed. This section includes the experiences of local coffee growers and describes the difficulties caused by the coffee crisis and the volatility of coffee production. It also analyses the diverse strategies adopted by Caramanta coffee growers to cope with the crisis.

The third chapter aims to analyze the agroecological farms' experiences in Caramanta, and the impact on the coffee production chain and on the living conditions of coffee growers. It explains how the implementation of agroecological systems made possible sustainable production of organic coffee and how it provided new opportunities to coffee growers. Also, the third chapter analyzes how the empowerment of the community has played a crucial role since the agroecological farms' implementation. This empowerment has contributed to the sustainability of productive activities in the agricultural sector and to the progression of other projects, such as the maintenance of rural pathways.

The concluding chapter is a synthesis of the main points found in the comparative analysis of the two productive systems under the perspective of new rurality. It also discusses how the innovative process led to an improvement in the conditions of production and marketing of coffee, and how community empowerment played a decisive role since the adoption of agroecological farms. Finally, it highlights the importance of a territorial development strategy rather than a sectorial development strategy.

CHAPTER 2 ALTERNATIVE APPROACHES TO RURAL DEVELOPMENT IN LATIN AMERICA

Rural development is a subject which continues to be heavily researched. In spite of the enormous agro industries, technological achievements, and high productivity levels, there is still a significant percentage of the global population that inhabits rural areas under precarious conditions. According to the World Bank (2007), three of every four poor persons in developing countries live in rural zones. 2,100 million people worldwide survive on less than US\$2.00 a day and 880 million on less than US\$1.00 a day; the majority depend on agriculture for their subsistence. Among the traditional solutions for reducing poverty and improving living conditions in rural communities: the adoption of national pro-poor policies, the interventions of NGOs, recommendations to reform agricultural markets, and land tilting. Despite these efforts, advances have had limited success, and poverty conditions seem to be perpetuated in some regions of the world.

In Latin American, rural context is characterized by elevated poverty and extreme poverty rates, high land concentration, and significant economic and political vulnerability. According to the Economic Commission for Latin American and the Caribbean (ECLAC, 2008), although poverty and extreme poverty rates have consistently decreased since 1990, a sizeable percentage of the population still lives in these conditions. In 1997, 34.1% of the Latin American population lived below the poverty line (184 million people, including 68 million living below the extreme poverty line). In the case of people who inhabit Latin American rural areas, poverty is more severe than in urban zones. Specifically, 52.1% of the population were poor and 28.1% were extremely poor in rural areas, while in urban areas these rates were 28.9% and 8.1%, respectively.

As a response to poor living conditions in rural zones, several new proposals have emerged where the endogenous factors available in a specific territory play a protagonist role in facing local and global challenges. These new proposals try to integrate multiple dimensions of a territory (economic, political, environmental, social, cultural, and subjective) to provide more suitable alternatives and development stakeholders and communities should integrate these dimensions into their development plans in order to achieve sustainable development goals.

Development theories were first formulated in the 1950s; since then, the concept of development itself has evolved and taken different forms. The concept has gone from purely economic perceptions to multi-dimensional views that include the individual, the environment, institutions and society. This first chapter describes a recent rural development proposal called “new rurality”, and also describes some elements such as innovation and empowerment that are crucial for the successful implementation of rural development plans.

2.1 The New Rurality

The new rurality is a development proposal that assumes rural development from a territorial perspective and that opposes the vision of sectoral development, which equates rural development to the achievement of productivity and efficiency in agricultural activities. As the new rurality proposes a development that includes the territorial elements of rural areas, it does not recognize the contribution of agriculture to the economy in isolation, but rather takes into account that rural areas are territories inhabited by people. Thus, the new rurality emphasizes the need to study these territories taking into account their populations, the demands for goods and services of these populations, the numerous economic activities of a primary, secondary and tertiary character performed by rural settlers, and the significant contributions made by territories to the local, regional, national, and global welfare.

The new rurality is a relatively recent approach, first discussed by scholars during the 1990s (Grammont, 2008; and Pérez and Caballero, 2003). This approach has had its greatest acceptance in Europe and Latin America among academics, policy-makers, and multilateral agencies, such as FAO; however, the application to the rural reality is still incipient due to the pressure from institutions and economic sectors favoured by, and accustomed to, sectoral development policies. The new rurality proposes a rethinking of rural development able to meet successfully the demands of a globalized world. In this way, new rurality consists of three fundamentals: the redefinition of the scope of rural policy, the revision of the rural economy, and a new institutional proposal.

Scholars and multilateral organizations agree in attributing seven characteristics to the new rurality that express the key points to consider when achieving rural development: 1) It places emphasis on territorial development as opposed to a sectoral approach. Consequently, it values the functions and services that the territory offers beyond the productive aspect. 2) It

assumes the countryside as a space connected to other rural areas and cities; thus, the new rurality is aware of the links between rural and urban development. 3) It highlights the diverse sources of income among rural households, and therefore analyzes both agricultural rural employment and non-agricultural rural employment. 4) It assumes the countryside as a residential space, which leads to consideration of services available to rural populations. 5) It promotes territorial competitiveness as an effective strategy for integrating rural inputs, products, technology, and labor to both national and global markets. 6) It takes into account the economic potential of historical, geographical, cultural, scenic, and ecological heritage. 7) It encourages the participation of diverse actors that make part of the territory for planning and implementing development strategies.

According to Salgado (2004), there are four paradigms of rural development from an economic perspective. The first one, called the modernization of dual rural economy, appeared in the mid 1950s and extended to the 60's. This paradigm poses a dilemma between the traditional and the modern production. It highlights the development of modern productive units with export orientation, land reform and the need for land titling to promote savings and investment, and improve rural standards of living. The second paradigm appeared during the 1970s and extends to the present day. This paradigm considers small farmers as a key driver of rural development. It argues that the productivity of small farmers should be increased in order to pull economic activities in other productive sectors. Thus, increased productivity increases the demand for agricultural inputs and farmers' incomes. Here the state plays a major role because it is responsible for inducing technological change through support to research. Also, the state should bring this technology to the rural sector through training programs.

In the 1980's, a third paradigm appeared. It focused on the participatory approach and empowerment of rural communities. In this approach, the design of rural development strategies uses a bottom-up approach which is that farmers occupy a leading role in designing development strategies. This approach emphasizes and values the traditional knowledge of farmers. It allows the analysis of issues related to rural poverty, gender, non-agricultural rural employment, temporary employment and indigenous participation in agriculture.

Finally, a fourth paradigm is sustainable development. This appeared in the late 1980's. The topics addressed are non-agricultural rural income, food security and sustainable livelihoods of rural populations. Salgado (2004, p. 159) states that the new rurality is nourished by this

paradigm because it considers the appropriate use and preservation of territorial resources as key elements for rural development.

Other authors place the origins of the new rurality more precisely and state that the concept is a response to the change caused by globalization. Pérez (2001), for example, affirms that globalization changed the circumstances of rural areas and presented peasants with new situations requiring different strategies to the traditional. The author identified five crises experienced by farmers today and proposes the new rurality as a strategy able to circumvent the demands of the globalised world and to ensure decent standards of living for people in rural areas.

The first challenge described by Pérez (2001), is an orientation and production crisis that calls attention to the greater degree of complexity for decision-making related to production and marketing of agricultural products. To make these decisions, farmers must be able to take into account their family sustainability, trade competitiveness, and the variety of options offered by the market. The second obstacle can be called a population and settlement crisis. This refers to the difficulty of rural areas to retain young people and prevent the migration of young and better educated people to urban cities. The unfavourable assessment of rural life compared to urban and limited employment opportunities are factors that significantly affect young people's desire of leaving rural areas. The third crisis can be considered more a traditional management crisis and refers to the change in the process of decision-making by farmers. Traditionally, farmers were used to rely on their intuition and knowledge to determine what, how and how much to produce. Today, this decision can rarely be taken independently. It depends on national and international policies, market signals, and competitiveness. The fourth is an environmental resource management crisis. The current state of degradation of environmental resources grants rural areas and their inhabitants a crucial role in the management, recovery, and preservation of the environment. The latest challenge described by Pérez is a crisis of traditional forms of social articulation. There have been changes in rural institutions that have led to conflicts and a power vacuum due to changes originated by globalization. The author's descriptions of these crises intend to show the limitations of traditional development paradigms to provide a satisfactory response to the demands of the new global order.

Grammont (2008, p.24) also contributes to the discussion of the origins of the new rurality by stating that globalization has transformed rural and urban spaces and, consequently, the relationship established between them. The author exposes how globalization has led to increased non-agricultural occupations in rural areas, to the use of mass media in remote areas, to new migration dynamics, and to the establishment of new social networks. The author also explains how technology and phytosanitary regulations have revolutionized methods of production in both the field and the city. In addition, non-agricultural rural employment has gained an important place in rural labour dynamics. The non-agricultural employment and the migration to urban centres have become options to increase household income in rural areas. In the Latin American case, poverty, inequality, and marginalisation have gained attention due to the poor results from development policies so far implemented. Furthermore, Grammont mentions the relevance acquired by gender studies, as well as environmental preservation, in the design of development policies and programmes.

The “new rurality” argues for rural development that seeks to analyze the rural situation, taking into account the different elements that are part of the territory to meet the challenges of a globalized world. In the new rurality, local actors are the cornerstone that helps to understand the situations of each region, country or locality, and they are the responsible for transforming their reality.

2.1.1 Definition, Approaches and Fundamentals of the New Rurality

Definition

The definitions and implications of “new rurality” are still evolving; thus, scholars who have worked on this subject are yet to agree to one definition. Yet they do concur that it is a territorial vision of rural development. Considering the concept of the new rurality, Grammont (2008: 34) writes that “it is a polysemous expression, and this feature limits its conceptual use.” However, the author clarifies that the new rurality is able to interpret a series of changes generated by globalization in the relationship between rural and urban spaces from the economic, social, cultural and political point of view. Thus, the author mentions how some terms lose validity (green revolution, agrarian reform, the role of the state banks in development), while others gain importance (ethnicity, multi-functionality of the rural economy, gender, ecology, poverty), and others appear on the upsurge (microfinance, decentralization,

participation, institution-building). For Grammont, the new rurality suggests a comprehensive analysis of the rural reality that was radically changed by the implementation of neoliberal policies. On the one hand, the neoliberal model opened space for the emergence of successful companies, but on the other it plunged whole populations into marginalization and poverty. Conditions in rural areas have changed with the globalizing process, hence the need for an approach to the rural reality in new ways.

Other authors such as Pérez (2001) and Pérez and Caballero (2003) attempt to define the new rurality by listing seven points on which the analysis of this approach focuses:

- 1) Territorial analysis rather than sectoral analysis
- 2) The relationship between rural and urban spaces
- 3) The multi-functionality of the rural economy
- 4) Rural areas as residential spaces
- 5) Local competitiveness as a strategy for market integration
- 6) Historic, scenic, cultural and ecological potential of territories
- 7) Diversity of actors and institutions that conform the territory

Certainly, the enumeration of these points and their explanations give an idea of the variables to account for under the scope of the new rurality. The list also opens up a space in multidisciplinary analysis where each science is called to contribute. According to Gómez (2008), this listing of variables does not provide a definition of the concept. Instead, he stresses that each discipline assumes a position on the new rurality according to their interests. Thus, for this author, a sociological analysis would focus on the relations established by people and groups in rural areas; however this approach is not enough and must take into account the points of view of other disciplines. In the case of sociology, Gómez suggests a definition which considers three dimensions: 1) the type of territory and the activities carried out by inhabitants, 2) the specificity that distinguishes it from other situations, and 3) the scope covered by the rural concept.

Approaches

According to Grammont (2008), there are three approaches of the new rurality. The first approach focuses on the economic, social and political transformations of the society. This approach gives greater relevance to understanding the global-local relationship in terms of

productive chains and migratory processes. The second approach focuses on what the public policy should be to achieve rural development. Sustainable development is a key element to this approach. The author states that in the Latin American case this approach focuses on the achievement of equitable development, while in the European case it focuses on environmental conservation. We can see that the first approach concentrates on the positive aspect of the analysis of rural reality (what is), whereas the second one focuses on the normative aspect (what it ought to be). The third approach is described by the author as a different look at the old Latin American rurality. This approach explains that the new rurality is a different way of perceiving rural areas and their contemporary issues, and not necessarily the emergence of new phenomena. Riella and Mascheroni (2008) argue that the sectoral analysis of the rural areas left a great number of hidden elements, but the territorial perspective of the new rurality brings to the surface those elements. The latter approach makes us think about the weaknesses of sectoral analysis of the rural spaces, but it is important to note that the globalization process brought phenomena, variables and new challenges and gave greater prominence to existing elements.

Fundamentals

Several authors agree in listing three fundamentals of the new rurality. According to Pérez and Caballero (2003), Pérez (2001), Machado et.al, (2004) and Salgado (2004), these fundamentals are: the redefinition of the scope of rural policy, the in-depth review of rural economy, and the proposition of new rural institutions. The first principle refers to the need for defining "rural" and the incidence of this definition in the design of development policies. Perez (2001) defines rural as a socio-economic entity in a geographical area with four components: 1) It is a supplier of natural resources, land, and raw materials, a waste receiver and a supporter of economic activities; 2) It has a population employed in diverse economic activities, and this population forms a complex socio-economic network; 3) It has a set of settlements that relate to each other and with the outside by the flow of people, goods and information, and; 4) It has a set of public and private institutions. It is important to redefine rural in order to highlight the fact that rural is not synonymous with agriculture or primary sector. A rural area contains specific natural resources, populations with cultural and historical heritage, economic activities in the primary, secondary and tertiary sectors, and various forms of settlement (villages, towns, regional centers, small towns with rural features, among others).

The second fundamental makes explicit the need for a review of the economic analysis of rural areas. The new rurality proposes a territorial analysis of the economy that includes resources and potential production chains. Echeverri and Ribero (2002) propose a shift from agricultural economy to regional economy where it is essential to include the economic analysis of labor, the valuation of traditional knowledge, the unique conditions of agriculture, the capital limitations, the opportunities offered by the environmental wealth, and the need for an equitable and inclusive economy. The authors emphasize the multifunctional role of rural areas including elements such as landscape richness, territorial cohesion, cultural preservation, employment generation and environmental preservation. In a practical sense, Perez and Caballero (2003, 24) argue that the economic proposals from the new rurality should take into account the multifunctional character of the rural area: "The economic analysis should value the territorial assets through various ways, but, conceptually, it has to present three major economic choices: agro-industrial and commercial activities that increase the added value of products and traditional services; new goods developed from resources, technical and cultural traditions rarely used; and use of horizontal synergies that increase the added value of various sectors (agro-industry, handicraft, tourism, etc.)."

The final fundamental of the new rurality proposes new rural institutions. This proposal advocates decentralization to give more autonomy and responsibility to local governments, private actors and civil society. According to Perez and Caballero (2003, 22), on one hand, the decentralization helps to increase local competitiveness through the mobilization of resources and capabilities. On the other hand, it contributes to the provision of services according to the actual needs of residents in a more transparent and efficient way.

2.1.2 The New Rurality in Europe

. In 1968, the European Community members established a sectoral rural development strategy called Common Agricultural Policy (CAP). This strategy exerted a strong intervention in markets and drove the structural transformation of the agricultural production. The market intervention was designed to establish a single agriculture market in the region and to maintain certain price levels. These actions guaranteed farmers similar incomes to those of workers in other productive sectors. The structural change was the modernization of productive processes through technical, social and environmental improvements. In 1988, territorial development strategies were proposed because it was found that sectoral policies were not adequate to

ensure rural development. In Europe, the result of the implementation of sectoral policies was an uneven development of rural areas, where a few sectors and territories concentrated benefits. In addition, the dependency on subsidies of agricultural activities was consolidated, and it eventually became more onerous for states.

Thus, in 1988, Europe introduced territorial rural development policies where beneficiaries were not only farmers, but also included all inhabitants of rural areas. The programs, under the territorial approach, were designed for each area bearing in mind the diversity of territories in terms of economic and social resources. These programs emphasized the preservation of the rural cultural heritage, the improvement of the supply of basic services in these areas, the promotion of tourism, and the diversification of economic activities. According to Perez and Caballero (2003), these programs had a smaller budget provided by the government in relation to sectoral programs; however, the trend shows an increasing availability of resources for territorial programs.

A specific example of implementation of territorial programs was the European Community program “Liaison Entre Actions de Développement de l’Économie Rurale” (LEADER), which had as basic principles: innovation, partnership² and multi-sectoral integration. This program began in 1991 and lasted until 2007, when it became the fourth axis of the European rural development policy 2007-2013. The implementation of a project under the LEADER initiative includes a vertical partnership that connects government institutions involved in the territory of local, regional, national, and Community order. It also includes a horizontal partnership associating the public and private actors in the territory for the planning, implementation and evaluation of development strategies. The LEADER approach focused on the diversification of production through projects committed to the conservation of heritage and environment, the strengthening of trade, the inclusion of value-added to traditional products, the support of small industries and service providers, and the promotion of rural tourism. The CAP concentrated on traditional agricultural projects. According to Perez and Caballero (2003), LEADER initiative had very positive results in terms of social capital formation, productive investment and job creation in marginalized rural areas in spite of the limited resources. Proof of this is that during the first phase, LEADER I (1991-1994), was implemented in

² The partnership is an alliance among various institutions or actors that share strategies and development objectives.

217 counties. In the second phase, LEADER II (1994-1999) was applied over 1,000 counties. Finally, in its third phase, LEADER + (1999-2007) had been implemented in over half of Europe's rural areas.

However, LEADER is not the only territorial development experience in Europe. Some countries chose to implement additional initiatives as the Program for Development and Diversification of Rural Areas (PRODER) in Spain, and the POMO in Finland. Other countries such as Italy and Ireland carried out territorial pacts, which are agreements between public and private actors in order to promote economic activities through a local partnership. One of the most significant achievements of these agreements is institutional strengthening, and how it has contributed to the interaction among actors within the territory. The creation of industrial and agro-industrial districts have also been examples of territorial development programs. Italy has successfully applied this kind of initiative. Industrial districts concentrate on the development of small enterprises and traditional products in a specific region. This initiative fosters the creation of alliances between productive and institutional actors devoted to the design and implementation of production policies, which are consistent with the territorial development plans. This has allowed small and medium producers to improving their competitiveness and participating successfully in the global market.

2.1.3 The New Rurality in Latin America

According to Perez and Caballero (2003), in Latin America, the application of territorial development programs is a complex task due to the conditions of the region. According to the authors, Europe has attributed that contributed to the success of territorial development strategies linked also to the general economic dynamic. First, there was a growing demand for labor in the industrial and services sector that favoured the transfer of rural labor towards high-productivity activities. Second, the low rate of population growth also contributed to the modernization of the rural sector, since there was not an oversupply of labor in that sector. Finally, Europe has sufficient resources that have enabled substantial investments in the rural sector. For instance, Latin America has had a rapid urbanization that is not synonymous with industrial development, as in the European case. According to Suarez et. al. (2000, 145), between 1950 and 1974, the rural migration to urban centers was linked, in part, to the import substitution model that initiated a boom in the industrial sector. Since 1974, the industrial dynamics stalled and began a rise in the tertiary sector. In Colombia, for instance, between 1988

and 1995, rural migrants were employed substantially in the construction industry and commerce, in the case of men, and domestic service, in the case of women (Lopez, 2000). These activities are characterized by precarious working conditions and low productivity. In Latin America, in 1974, the transition of the economy towards the production of industrial goods and higher value-added services stagnated. The production was aimed at the services sector where the replacement of tradable by not-tradable goods production was consolidated.

This dynamic also affected the development of the primary sector. Unlike the European case, Latin America's primary sector was not fostered by the consolidation of the industrial goods production with higher added value. The rural sector was developed heterogeneously with dispersed production units, and with disconnected technological and institutional conditions. According to Suárez et. al. (2000, 145), "the modernization of rural production failed to consolidate the industry as a milestone in the economy and increased poverty."

Another element to consider in Latin American rural development is the proportion of the total population living in rural areas and the occupations they have. According to CEPALSTAT (2010), in 2010, the proportion of rural population compared to urban population was 80%:20%. This proportion is expected to remain constant for the next ten years. This means that nearly 120 million people inhabit Latin American rural areas. According to Grammont (2008), (PEEA) in Latin America, the agricultural working population has remained constant for several decades at 43 million people. This situation differs from the European Community situation where the agricultural working population has decreased significantly. Thus, in 2005, the percentage of the population employed in the primary sector in the European Union was only 4% while in Latin America it was 17%; as opposed to 1981 when the percentage in the European Union was 15% and in Latin America it was 35.5% (CEPALSTAT, 2010).

Unlike Europe, Latin America has not had an initiative as significant as Europe's LEADER programme. The book, *The New Rurality in Latin America (La nueva ruralidad en América Latina, 2008)*, is a compilation of the theoretical and empirical evidence on this issue. From this book we can observe that some authors take new rurality elements to perform an analysis of specific cases in different Latin American countries. Other authors analyse particular policies such as the universal access to new information technologies in Chilean rural areas and the impact on rural development policies. Finally, some authors describe the decentralization

processes in Ecuador and Peru. But no one shows or mentions experiences comparable with the European rural development programmes referred above.

2.2 Innovation and Rural Development

Taking into account changes caused by the globalization process, the previous section argued the need for a new rural development perspective. Rural development sectoral perspectives have proved insufficient, since a significant proportion of rural people have been marginalized and remain in poverty, as in the Latin American case. The new world order requires rural people to implement new strategies able to provide food security and decent standards of living in rural areas, which are more and more closely related to other rural and urban areas at the national and international levels. In addition, rural areas are perceived today as spaces for the conservation and recovery of natural resources, where the state of deterioration has been a topic of interest in recent decades. It should be also noted the central role of new actors in the design of rural development strategies such as women, indigenous people, peasant organizations and environmental groups.

Given this scenario, the new rurality opens an important space for innovation. In this case, the new rurality is not only about innovation from the analysis of rural areas, but from the strategies implemented to achieve rural development goals. The new rurality examines the factors that shape a territory, and includes them in creating development strategies. As reported by Chiriboga (2007), there is no place for uniform strategies when each territory designs their development strategies taking into account their own elements. Thus, in designing new strategies it is important to include economic, cultural, historical, environmental and institutional factors that describe the territorial reality. The new rurality also emphasizes the need for institutional innovation. This development approach involves all actors within the territory to be developed and the implementation of initiatives. The new rurality not only speaks of the actors' participation, but of the forms of interaction among these actors. Each actor contributes with his knowledge and experiences to achieve common objectives. Finally, the new rurality also calls for innovation in economic activities. The new rurality stresses the need to analyze the supply of goods and services other than those incurred in the agricultural sector, and to study the contributions of secondary and tertiary sectors to the regional economic dynamics in terms of employment, equity and development.

According to the International Fund for Agricultural Development (IFAD, 2006), the rural development sectoral approach conceived the innovation as a linear process. Innovation started with agricultural research, followed by a technological advance, and ended with the deployment of such technology by farmers. The success of the innovation process was evaluated in terms of improved productivity and efficiency. This excluded other impacts generated by the innovative process such as the damage of natural resources due to the intensive use, the deepening of inequality because sectoral policies benefited only some individuals, and the dependence on resources outside the territory which significantly compromises the income of rural households. The new rurality states that innovation stems from the actors linked to the territory and not from outsiders unfamiliar with the territorial elements. According to IFAD (2006), innovation is a process of interactions among regional players with varying degrees of economic, political, and social power, and with diverse interests that can sometimes be contradictory. In this way, innovative processes include variables that were ignored under the sectoral approach. This new approach gives priority to the innovation process, not the product of innovation. The emphasis is on how different actors interact and contribute to the process leading to a learning dynamic, which strengthens their capabilities and opportunities.

From this new perspective small innovations are also valued for achieving development. According to Perrin (2002), innovation is defined as a novel way of doing things, either better or differently. The author also describes, how there is innovation on a large scale, such as the discovery of a major new technology, a new business venture or a new program to solve a social problem. There is innovation on a small scale that can be embedded within large-scale processes and generate significant impacts. For example, in Colombia, rural pathways are characterized by their precarious status. This causes problems for the mobility of people and goods. The maintenance of rural pathways depends on the willingness and the budget of local governments, but often the budgets are not sufficient or there are problems that have higher priority. Often, during the winter season, these pathways may be impassable, and sometimes, entire populations can be isolated for several days. To solve this, some community-based organizations, such as ASAP, have devised programs where each household is responsible for maintaining a specific area of a rural pathway. In this way, they ensure a continuous maintenance of rural pathways by means of a simple idea that does not require a huge investment but brings enormous benefits in terms of mobility to these communities. In addition community ties are fostered, thus contributing to building social capital.

Chiriboga (2007) explains that innovation is a combination of tacit and explicit knowledge. The tacit knowledge is transferred knowledge from generation to generation, and is associated with the beliefs, customs, insights, abilities and skills developed within a specific context. In contrast, the explicit knowledge is transmitted through education and comes codified in texts. For the rural case, the author recommends that innovation processes must be nourished by the people's tacit knowledge related to ethnicity, landscape, history, natural resources and local traditions. Thus, in a first stage, the tacit knowledge should be identified. In a second stage, this knowledge should be made explicit and new ideas or prospects should begin to emerge, leading to innovation. According to Chiriboga, when it comes to innovation in rural areas it is important to achieve interaction between the tacit knowledge of the population and the explicit knowledge from science. Therefore, institutions should not replicate processes that have been successful in a particular region without taking into account the conditions of the territory where they plan to apply these processes. There should be an adjustment process in line with regional allocations and the interests of the residents.

There are many examples of successful experiences in rural areas which were able to combine tacit and explicit knowledge, making way for innovative activities. For example, in the Colombian region called The Coffee Belt, composed of three provinces: Risaralda, Quindío and Caldas, a tourist complex was developed which is currently the second most popular tourist destination in Colombia (Gomez, et.al, 2004). With the collapse of the International Coffee Agreement in the late eighties, the drop in the coffee prices, and the presence of phytosanitary diseases affecting the coffee crops, the big coffee growers in the area began to exploit their coffee farms as tourist sites. These farms offer high-quality standards in their provision of services, and also preserve the typical architecture of the coffee farms, offer traditional dishes, and allow tourists to enjoy the mountain scenery and learn about the coffee culture. Subsequently, entrepreneurs and local authorities started constructing theme parks linked to the traditions and culture of the area. The success of these parks as major tourist attractions has inspired the construction of other theme parks in Colombia.

Although innovative processes are perceived positively, it should be noted that there is some resistance to innovation due to the risk of failure, to low success rates, and to resistance to change from individuals. Even though many innovation processes may end in failure, the final result should not be an impediment when it comes to taking risks and trying new processes.

According to Perrin (2002), learning from failures in innovation processes should be useful for new experiences. The author also warns about the trend of evaluating innovative processes based on success rates or average values. Improper use of these indicators can discourage the occurrence of truly innovative processes. Perrin provides an example that clearly explains this idea. If a program funds 100 projects and has only a success rate of 1%, there is a tendency to believe that this program failed. But if it turns out that the successful project manages to find a cure for AIDS, it cannot be said that the program failed. The author explains that this logic must be applied also to social projects seeking for example the reduction of poverty, the achievement of food security, improvements in the conditions of employment, among others. The author recommends that the evaluation process should recognize small innovative efforts and extraordinary achievements rather than focusing on average indicators that all they do is rewarding safe actions. Perry suggests that innovative programs that boast a high success rate should be viewed with suspicion because it may not be as ambitious as it is intended to display. The results of a program of this type can be mediocre compared to programs that do not show such high success rates.

Finally, in the case of rural development, innovation processes that seek to improve the quality of life of rural populations must be supported on platforms that embrace these communities in planning strategies for solving their problems. According to IFAD (2006), three dimensions must be included in order to achieve innovation in rural areas: institutional, associative and organizational or empowerment. The institutional dimension is responsible for providing security, information and confidence to the groups involved in new projects. For rural households with few assets it is important to create strategies that reduce risks and uncertainty, and motivate participation to facilitate the involvement in new processes. The associative dimension provides a space for stakeholders, from different sectors and with varying degrees of power, to come together and share their experiences to achieve specific goals. Finally, the organizational dimension or empowerment ensures that the inhabitants of rural areas develop their potential and participate in political, economic and social processes affecting their communities. The next section explains more in depth the concept of empowerment, since it has proven to be a crucial factor in the good performance of development strategies, in addition to being the starting point of such strategies.

2.3 The Role of Empowerment in Rural Development

According Murguialday et. al. (2006), empowerment is defined as "the process by which people enhance their skills, confidence, vision and leadership as a social group to promote positive changes in living situations." The empowerment approach was born during the 1960s, and initially was linked to the participative education method developed by Paulo Freire. However, empowerment's major theoretical development was during the mid 1980s. Murguialday et. al. (2006) affirm that in the beginning, it was applied to women's experiences by a research group named DAWN (Development Alternatives with Women for New Era). These experiences described how women took control of their resources, strengthened their capacities, and thus began to participate actively in various fields, leaving behind a passive and subordinate role. Years later, the term was applied to vulnerable communities. Thus, it began to be used not only in gender studies, but also in development studies. According to the authors, empowerment can be individual or collective. In the individual dimension, people raise their confidence, self esteem, and skills to meet their needs. In the collective dimension, individuals organize to achieve common goals. In this dimension, vulnerable individuals have greater ability to enforce their rights, since they gain visibility and power in front of institutions and society, in general. It is not the same a peasant family claiming their rights to land than an organization of peasant families demanding their rights to land and carrying out various activities in order to achieve this goal.

Empowerment, as discussed in the previous section, is one of the elements that must exist to achieve innovative processes that will lead to development. In the case of development programs aimed at solving the problems of vulnerable rural populations, it can be said that empowerment is a crucial element and point of departure. An empowered community is aware of their rights, capabilities, and interests, so that they will not allow outsiders to impose on them programs that do not meet their expectations. According to IFAD (2006), the processes of innovation and development that significantly benefit the poor are often ignored or restricted to not alter the privileges of other actors with greater political and social power. If rural communities are unable to interact on an equal footing with the actors who enjoy greater power and financial resources, it will be difficult to include their needs in the design and implementation of development plans and programs.

Empowerment is a process that takes time since it involves the achievement of several elements that cannot be immediately attained. First, individuals must be able to identify their current situation within society and gain confidence as active individuals in society. Second, an autonomous organization must be accomplished, where individuals recognize their ability to influence the course of their lives and set goals to improve their living conditions. Finally, individuals undertake a mobilization process that leads them to interact with other social actors and institutions and to actively participate in economic, political and social issues. Empowerment of vulnerable individuals and communities leads them to shift from a subordinate state to an autonomous state as result of increased self-esteem, skills, education, and information.

According to Murguialday et. al. (2006), empowerment also represents taking control of various resources essential for the achievement of development. Individuals and communities gain control over material resources whether they be physical, human or financial. They decide how to use their land, job skills and income. They also get control over the intellectual resources. In this way, they gain access and they use knowledge, information and new ideas that may affect in any way their objectives. Finally, individuals achieve control over their identity, and thus generate, propagate, preserve and institutionalize beliefs, values, attitudes and behaviors. Consequently, empowerment implies a change in attitude accompanied by taking control of the resources to meet specific needs.

Finally, it should be noted that empowerment is also desirable in the process of development as it contributes to the sustainability of these processes. An empowered community cuts off dependant relationships, and instead sets more egalitarian relationships where the parties autonomously contribute according to their ability and experience. Communities learn to identify their weaknesses, assess their capabilities, propose solutions to their problems, and implement actions leading to the improvement of their living conditions. Consequently, the institutions working in development programs must assume a facilitating role that enhances the capacities of the communities they seek to help. When institutions leave communities, they must be able to continue with initiatives undertaken and sustain them in the long run. Also, communities will be able to modify initiatives according to new circumstances that may come up. In this way, empowerment contributes to the sustainability of plans and development programs.

CHAPTER 3 THE PRODUCTION OF COFFEE IN COLOMBIA AND CARAMANTA

In Colombia, coffee production was one of the major economic activities during the twentieth century, and still stands as one of the main productive sectors that generate employment in rural areas. However, the circumstances that facilitated the strengthening of this sector during the last century have changed dramatically following the collapse of the International Coffee Agreement and the new challenges faced by coffee growers under a globalized world. This chapter describes the process for the Colombian case. Also, it analyses the case of coffee growers in Caramanta, a traditional coffee-producing village. It can be observed how the coffee crisis affected the lives of small farmers, the weaknesses of the conventional production system that led to a worsening of the crisis, and some alternatives taken by small farmers to overcome new challenges.

3.1 Coffee in Colombian History

The history of coffee dates back to early eighteenth century when it was introduced to Colombia. In the nineteenth century, coffee became the main product of the Colombian economy, and in the twentieth century established itself as one of the main engines of development (Junguito y Pizano, 1991; Cadena, 2005; y FNCC, 2010). The first commercial crops and exports of coffee were in 1835. In the second half of the nineteenth century, coffee was consolidated mainly as an export because countries like the United States, France and Germany had become significant consumers of coffee and the big Colombian coffee growers began to meet that demand.

Between 1860 and 1900, Colombia went from exporting 60,000 to 600,000 bags of 60 kilos³. At that time, coffee production was in the hands of large landowners who had resorted to foreign loans to finance their crops. In the early twentieth century, large farmers entered into crisis due to the decline in international coffee prices that affected the profitability of the business; the start of the Thousand Days War⁴ that prevented the proper functioning of the estates; and the impossibility to pay loans abroad. This situation favored the transition of coffee

³ The international unit of measurement for coffee trade is a sack of 60 kilos of green coffee (FNCC, 2010).

⁴ The Thousand Days War was a civil war between 1889 and 1902 in Colombia.

cultivation from large producers to small producers. For their part, small coffee growers had found in coffee a steady income source, since coffee allowed practicing intensive agriculture and also keeping their subsistence crops.

Since 1905, coffee had a surprising growth thanks to the improvement in external prices, the end of the war, and the policies adopted by the government. According to Pizano (2001), between 1905 and 1930, Colombia went from exporting 500,000 bags to three million bags. In other words, the sector grew at an annual rate of 7.5% over 25 years. This growth reflected in the Colombian participation in the global market, which grew from 2% to 10% (Pizano, p.2). According to this author, the outstanding performance of the sector was due to five factors that made it possible to consolidate this productive activity as a motor of development of the Colombian economy.

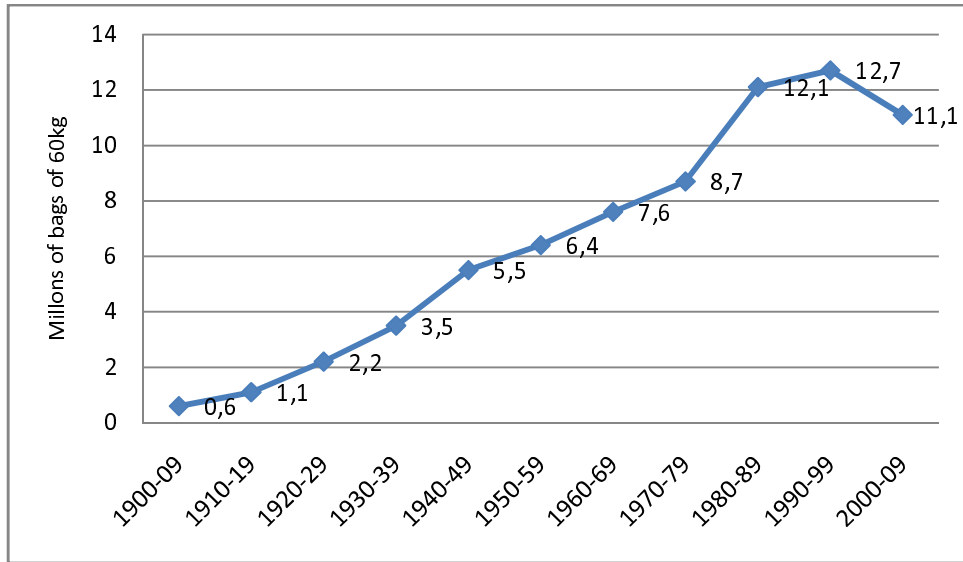
First, during the period between 1870 and 1930, coffee was a major source of employment and added value. It also fostered the use of diverse productive resources. This activity not only involved large landowners but also small farmers, a fact that meant increasing the purchasing power of a large segment of the population. Second, the resources generated by the coffee nurtured the development of other economic activities, the creation of financial institutions, and the construction of railways and transport (Pizano, 2001; Junguito and Pizano, 1991). The third factor considered by Pizano et al. are the favorable external conditions in terms of real coffee prices during this period, excepting only the period between 1890 and 1900. Fourth, global market conditions allowed Colombia to substantially increase its share during this period. Finally, the fact that coffee farming coexists with subsistence crops (maize, yucca, and plantain) allowed small and medium coffee farmers survive during times of low prices.

Unlike other agricultural sectors, the coffee sector has enjoyed a solid institutional support from the National Federation of Coffee Growers of Colombia (Federación Nacional de Cafeteros de Colombia-FNCC). The FNCC emerged in 1927 with the need of increasing the bargaining power of the growers against the foreign companies which dominated the business. The FNCC is defined as a rural NGO and its objectives have been ensuring the well-being of coffee growers, supporting research to optimize production costs and maximize the quality of coffee, providing technical support to farmers, becoming involved in the price and marketing regulation of coffee to achieve fair prices, and carrying out programs that benefit coffee-growing families and their environment.

The importance of the FNCC in coffee performance has been the device of long-term policies that eventually consolidated coffee as one of the main agricultural products in Colombia. An example of this was the creation in 1938 of Cenicafé, an institution responsible for technological development and research to improve quality and productivity of crops. In addition, in 1940, the National Coffee Fund was founded with the purpose of providing financial security to the coffee growers against market risk, and of financing investment in the sector. According to Pizano (2010), the Colombian coffee model has been unique in the world and stands out because it was able to reconcile the sector's policy with the national macroeconomic policy, and because the coffee institutions have been able to adapt to changes in the market.

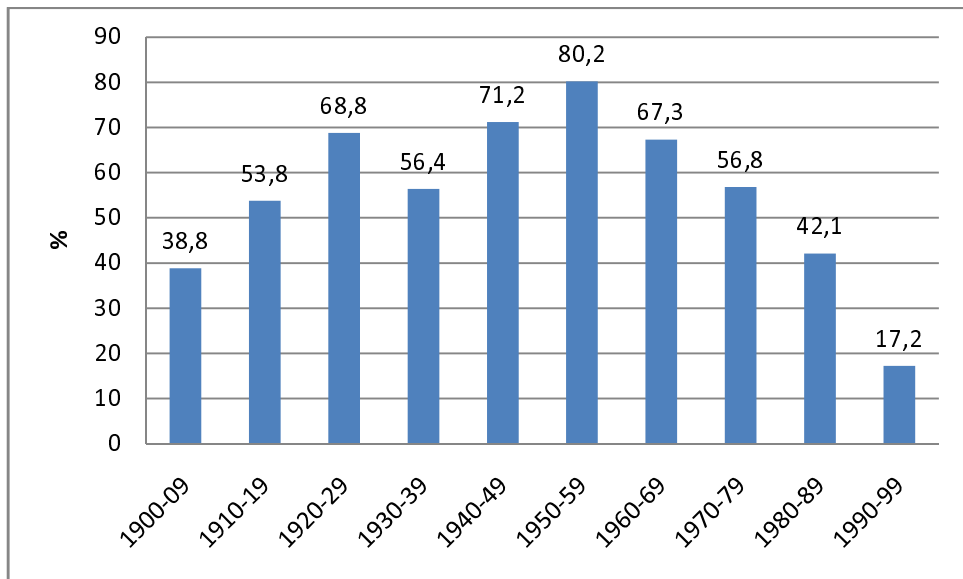
The formation of the FNCC and the policies it implemented led Colombia to become one of the second largest producer and exporter of premium mild washed coffee in the world and a strong competitor for leading producer, Brazil (Pizano, 2001; Junguito and Pizano, 1991). Figure 1 shows the evolution of the production of green coffee bags between 1900 and 2009. It is clear how this activity maintained a rising trend during the twentieth century. Figure 2 illustrates the share of coffee in total export value and how during most of the twentieth century it contributed more than 50% of total export value. The proportion of coffee's export value has diminished in recent decades due to greater diversification of the external sector and the rise in oil exports. Finally, Figure 3 shows the share of coffee in total GDP and agricultural GDP, which reflects the sector's contribution to the economy in general.

Figure 1 Colombian Production of Green Coffee, 1900-2009



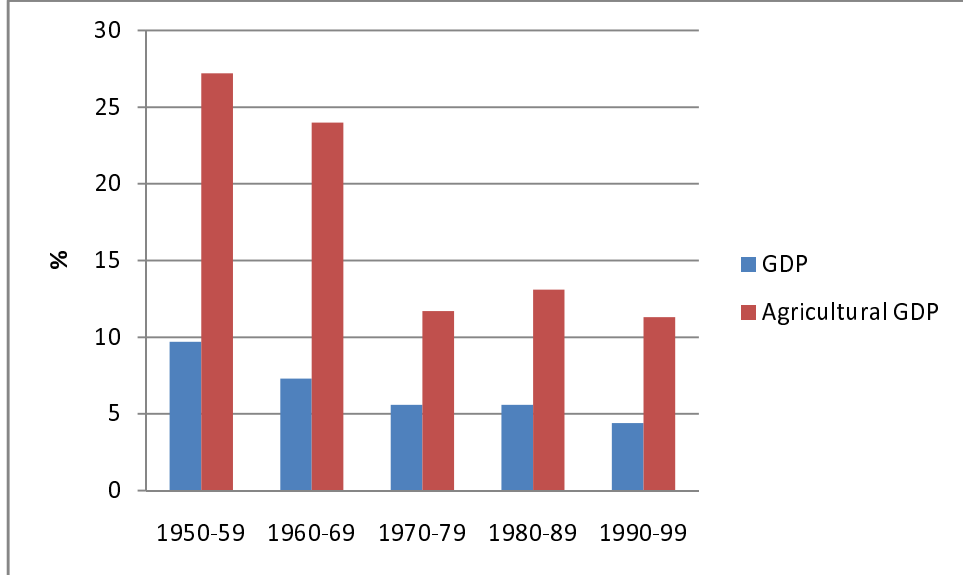
Source: FNCC (2010) y Pizano (2001, p.8)

Figure 2 Share of Coffee in the Value of Total Colombian Exports
(Annual averages per decade)



Source: Pizano (2001, p.13)

Figure 3 Colombia - Evolution Coffee's Share in GDP and Agricultural GDP (Annual averages per decade)



Source: Pizano (2001, p.14)

3.2 Coffee Crop Description

According to the FNCC, the type of coffee grown in Colombia is 100% of the species *Coffea arabica* (known as Arabica coffee). This type of coffee is grown in mountainous areas between 1,000 and 2,000 meters above sea level, and represents 75% of the total world coffee production. This coffee is more delicate and less productive compared to *Coffea canephora* (Robusta coffee)⁵, but remarkable for its smoothness and aroma. The Arabica coffee varieties grown in Colombia are 6: Typical, Bourbon, Maragogipe, Tabi, Caturra and Castillo Variety, formerly known as Colombia Variety (FNCC, 2010). Coffee is grown in the 3 Colombian mountain ranges located in the Midwest and in the Sierra Nevada de Santa Marta (see Figure 4). It is estimated that there are currently between 850,000 and 900,000 cultivated hectares of coffee in the country, and that there are more than 500,000 families engaged in this activity.

⁵ There are 103 recognized species of coffee, but only two species are responsible for 99% of world production, *Coffea arabica* (Arabica coffee) and *Coffea canephora* (Robusta coffee) [FNCC, 2010 (a)].

Figure 4 Colombian Coffee Zones



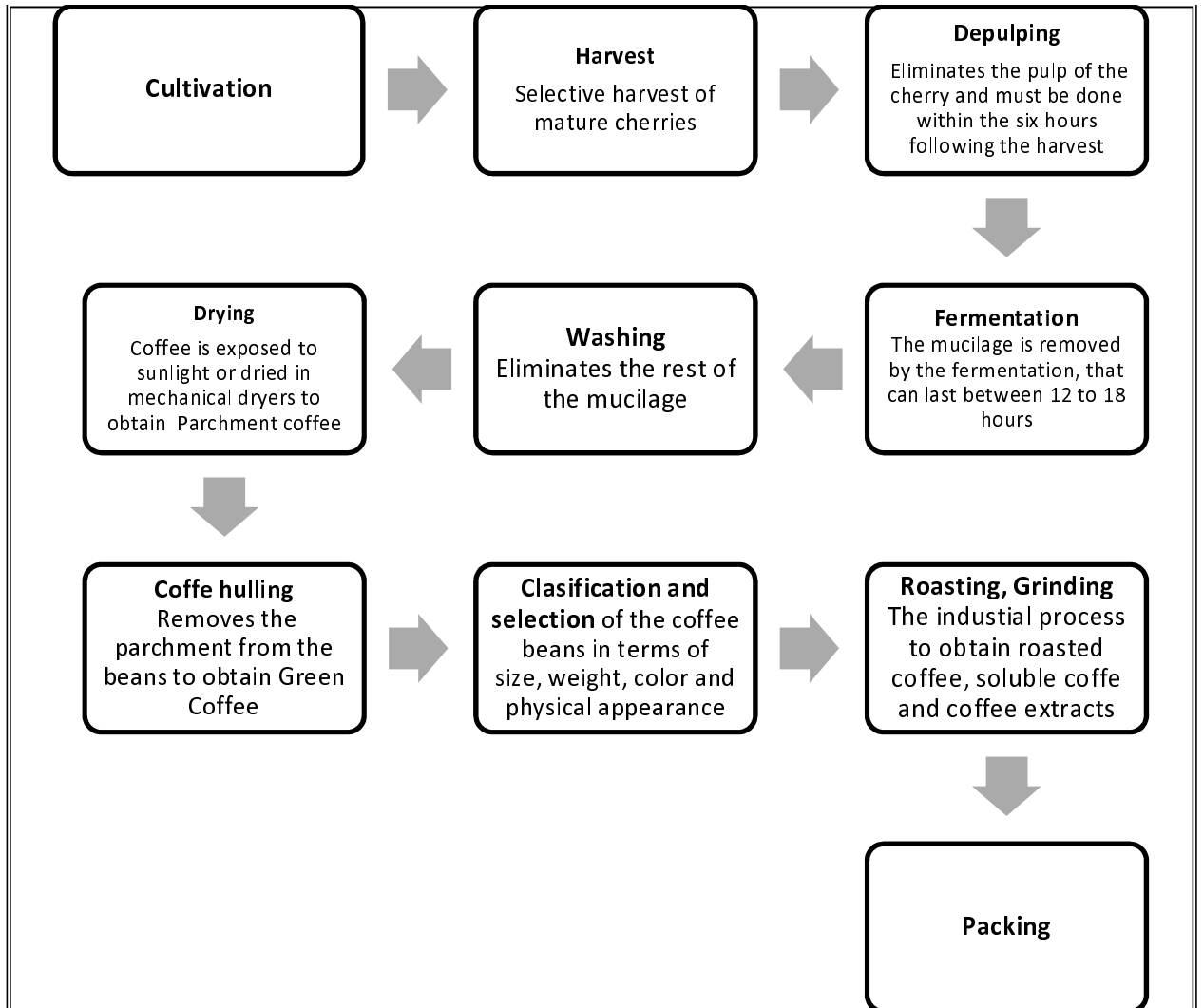
Source: FNCC (2010)

In Colombia, family production units are in charge of most of the national coffee production. On average, coffee crops do not exceed 2 hectares. Only 5% of the coffee plantations are greater than 5 hectares (FNCC, 2010). A modern coffee hectare can accommodate between 3,000 and 10,000 trees per hectare (Cega, 2001). According to the FNCC, in most coffee-growing areas of the country there are two harvests per year: the main harvest takes place between September and December, and there is a secondary harvest (denominated "mitaca") between April and June. The country has specific characteristics that allow obtaining a high quality coffee and a pronounced and complete aroma: 1) the country's location near the equator provides temperatures between 18 ° and 24 ° C, suitable temperatures for the development of the bushes, 2) the soil in the coffee areas have volcanic origins with high organic content, thereby the use of fertilizer is reduced compared with other countries, and 3) in Colombia, the passage of the Intertropical Convergence Zone (ITCZ) generates two significant rain seasons every year in the center of the country. This factor avoids the use of artificial irrigation systems, and ensures the availability of fresh coffee any time of year.

Coffee cultivation is a laborious activity that requires multiple stages and is labour-intensive. The activities required to grow and harvest coffee are manually made, since coffee is grown in mountainous areas where the implementation of mechanized processes is difficult. Hence, coffee crop is the main generator of agricultural direct employment in Colombia. During the last decade, the coffee sector has had a 51% share in the total of direct agricultural employment, representing 760,000 direct jobs (Agronet, 2010). The second most important national crop, in terms of employment is sugarcane with a share around 20% for the same period. According to the FNCC, a family's average production is around 2,360 pounds of 500g (2,600 American pounds) per year. This involves processing about 5.2 million coffee cherries. The production of one pound of roasted coffee (500g) requires total cultivation of cherries from one bush all year round. If the coffee variety is less productive, then 2 bushes are required. The production process starts with the activities within the farm that are planting, harvesting⁶, post harvesting (includes the activities of depulping, fermenting, and washing) and drying (see Figure 5). After these activities the Parchment coffee is obtained, which in most cases is taken to the threshing machine. In the threshing machines, the yellow coat is removed from the bean and the green coffee is obtained. Then, the coffee is selected and classified according to size, color, weight and physical appearance. Green coffee is exported, and is the input for the production of roasted coffee, soluble coffee and coffee extracts. When green coffee is not for export, it continues its production process within the country, where it is ground, roasted, and packed (Espinal et. al., 2005; FNCC, 2010).

⁶ One of the reasons why the quality of Colombian coffee is outstanding is that the collection process is done manually. This allows selecting the mature coffee beans and of high quality, which prevents mature grains from being mixed with no developed or damaged grains that affect the taste of the final product.

Figure 5 Coffee Production Stages



3.3 Coffee and the Colombian Economy during the Last Decades

Of all Columbia's permanent crops, coffee has the highest number of hectares cultivated in the country. It is a permanent crop that requires between 18 and 24 months for the first harvest, and reaches its maximum productivity at 6 and 8 years. After being planted, permanent crops generally require a relatively long time to reach working age. They also give several harvests without replanting after each harvest. According to the National Agricultural Survey 2009 (ENA 2009)⁷, in Colombia, permanent crops occupy 60% of the total area devoted to agricultural production. It should be noted that only 7% of the total area studied by the ENA 2009 corresponds to agricultural production. Another 77% is devoted to livestock production, 14% is occupied by forests, and 2% corresponds to areas occupied by infrastructure or housing.

In 2009, the total of hectares of coffee crop was 664,479. Then, the cultivation of coffee was 18% of the cultivated area of the country and represented 30% of permanent crops. The total coffee production was 481,122 tonnes (t) in 2009, the average yield per hectare was 0.90 tons, and it is estimated that there are 42,954 production units (ENA, 2009)⁸. According to Agronet (2010), coffee accounted for 12% of total agricultural GDP in 2009. These data show the current relevance of coffee in the Colombian economy.

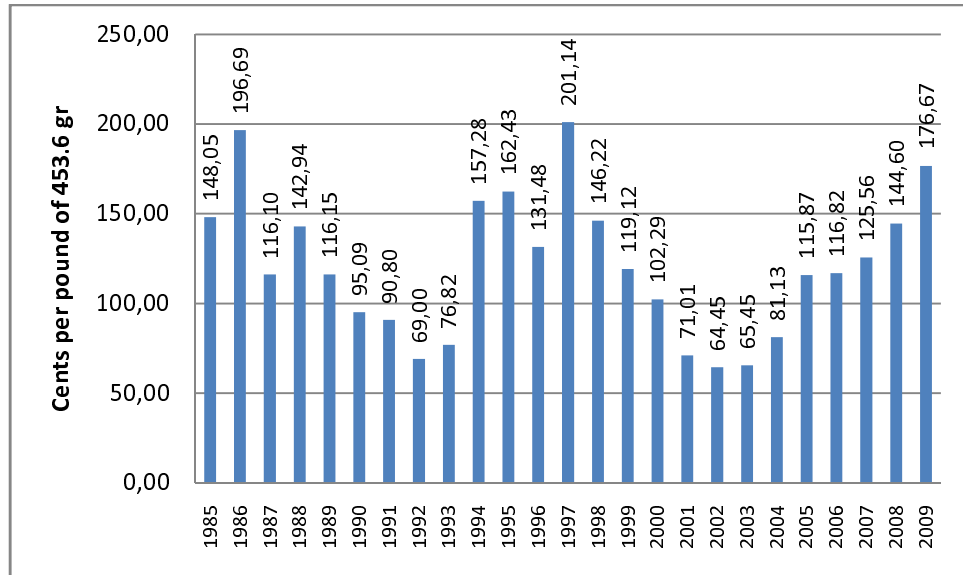
However, in recent decades, the cultivation of coffee has faced several problems that have reduced its share in the economy and production levels. This situation has forced farmers to use new strategies to cope with the demands of the new world order. Colombia started the 1990s with a production volume of 14.083 million bags annually. It reached a peak in 1991 with 16.179 million bags, and since then, the annual production has ranged between 11 and 13 million bags; except for 1999 and 2009, critical years where only 9.112 and 7.812 million bags of green coffee were produced. After the collapse of the International Coffee Agreement in 1989, international coffee prices fell. From 1960 to 1989, a quota system operated that kept the price between US\$ 1.20 and US\$ 1.40 per pound, which favored producing countries (Rettberg, 2010).

⁷ The National Agricultural Survey 2009 only includes a study area 45% of the Colombian territory. The remaining 55% of the total area is excluded, because they are areas covered in bodies of water, wastelands and urban areas. Some areas are also excluded due to lack of agricultural activities or the existence of public policy issues that impede access to these areas (ENA, 2009).

⁸ According to the ENA 2009, a production unit (UP) comprises one or more pieces of land devoted to agricultural production, which are under a single management and share the same means of production such as labor, machinery, etc. The management of land can be exercised by a person, household, company, cooperative or other form of management.

Figure 6 shows that in the five years following the breakup of the international coffee agreement, the price was below US\$ 1.00 per pound, reaching a minimum price of US\$ 0.69 per pound in 1992.

Figure 6 External Price of Colombian Coffee (Annual average)



Source: FNCC (2010)

Other factors contributed to the collapse of the International Coffee Agreement and caused the increase in the supply of coffee and the subsequent drop in price. The entry of Vietnam into the world market after the liberalization of its economy in 1989 resulted in this country moving from producing one million bags of coffee in 1985 to producing 13 million bags in the year 2000. According to Pizano (2001), the expansion of Vietnamese production is surprising considering that Colombia took 78 years to achieve this type of expansion (one million bags in 1900 and 12.5 million in 1978). The production expansion led to Vietnam to occupy second place as exporter of coffee displacing Colombia to third place in the first decade of the 21st century (ICO, 2010).

In addition, in 1994, Brazil began a process of modernization of its coffee production by reducing the number of hectares planted (in 1992 there were more than 4 million, and in 2000 there were about 2.3 million hectares), but increasing the number of bushes planted per hectare (3,200 million bushes in 1994 to more than 5,000 million in 2000). The modernization of crops increased productivity from 9-10 bags per hectare in 1994 to 17-18 bags per hectare in

2000. Also, Brazil reduced the production of coffee in the areas vulnerable to frost and replaced it by other crops. All this led Brazil to increase its production potential, potential that was realized, in part, thanks to the good prices of coffee between 1994 and 1999 (Pizano, 2001; Narvaez and Vargas, 2007).

As seen in Figure 6, coffee prices began again to decline in 1998 and only managed to recover in 2004. According to FNCC (2002), this was due, in part, because coffee supply surpassed demand during those years. For example, in 2002, coffee inventories increased to levels equivalent to 8 months of global consumption. Also, during that time there was a decreasing trend in per capita consumption, especially in the U.S. Although consumption grew in absolute terms, it did so at a lower rate than production (Montenegro, 1998, p.7). This led to industry analysts raise questions about the need to increase consumption through promotional campaigns and improved quality during the first World Coffee Conference in 2001 (Pizano, 2001, p.65)⁹.

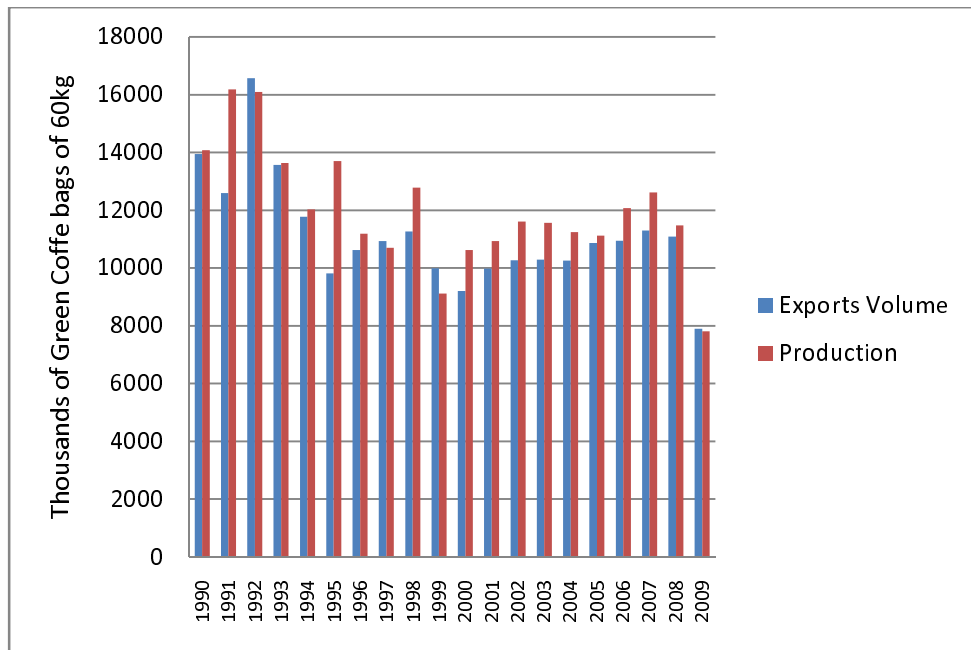
In 2003, the trend of oversupply changed and this was the first year, after five years, where the production of coffee was recorded lower than demand in the global market (FNCC, 2004). This was due to the decrease in production in some countries as a result of low prices in previous years and the commitments made by other countries to increase the quality of coffee. The latter led to remove coffee of poor quality from the world market. Unfortunately, in the case of Colombian coffee growers, increased international prices of coffee did not translate into equally large increases in income. Since 2004 the dollar began a period of devaluation, which resulted in loss of competitiveness for Colombian exports.

In 2007, the external price of coffee continued its upward trend, while the dollar continued to depreciate. This resulted in the reduction of the domestic price of coffee by 2% compared with the previous year. This situation was compounded by the rising price of fertilizers and labor, essential inputs for the production of coffee (FNCC, 2008). As shown in Figure 7, in 2007, coffee production declined as a result of prolonged winter seasons, the

⁹ The World Coffee Conference was proposed by Brazil and Colombia within the International Coffee Agreement 2001. Its purpose was to provide a discussion space about the trends in world coffee economy for analysts from the public sector, private sector, and academic. So far three conferences have been held: the first in England 2001, the second in Brazil 2005, and the third in Guatemala in February 2010.

increase in fertilizer prices and the increase in the renovated hectares¹⁰, which in some cases was beyond the standards recommended by the National Federation of Coffee Growers (FNCC, 2009 and FNCC, 2010 [b]). Finally, in 2009, winter continued to affect coffee crops since there was a 40% increase in the historical levels of rainfall. Furthermore, the presence of coffee leaf rust¹¹ in crops also increased with the decline in fertilizer application due to its higher price (FNCC, 2010 [c]).

Figure 7 Exports Volume and Production of Colombian Coffee, 1990 - 2009



Source: FNCC (2010)

In conclusion, with this brief description of the performance of Colombian coffee sector over the past decades we can see some of the numerous and diverse elements affecting coffee production. First, coffee price is very sensitive to changes in supply and demand. Second,

¹⁰ The plantation renovation is a FNCC policy that replaces old bushes with new ones. As mentioned before, coffee is a permanent crop that takes between 18 and 24 months to get to its first harvest, for this reason the volume of production falls when carrying out renovation.

¹¹ “The coffee leaf rust is a fungus formally known as *Hemileia vastratix*, is easily distinguishable by the presence of yellow dust on the inferior side of the coffee leaves. It is a cyclical disease that principally affects the foliage, producing defoliation and damage known locally as "paloteo", which is linked to years of high production with severe epidemics. Within susceptible crops, the disease has caused damages up to 23% of accumulated production, or roughly the equivalent of 1 out of every 4 crops. The foremost method in treating Coffee Rust is by planting varieties resistant to it, such as Castillo. For those varieties which are more susceptible such as: Borbon, Tipica, Maragogipe, and Caturra, the use of preventive fungicides such as Copper Oxidloruro, Cyproconazol or Tiradimefon are required” (FNCC, 2010 [a]).

technological changes have achieved a substantial increase in productivity in recent years. Third, the exchange rate has also affected coffee growers' yields, since it is a determinant of export competitiveness in the global market. Fourth, the cost of inputs such as fertilizers and labor has become a problem in recent years for Colombian coffee producers. Fifth, diseases and pests can still affect the state of coffee crops. Finally, the recent global climate changes directly affect the outcome of the harvest. Some elements are left out, such as the arrival of speculators to stock markets in the nineties, who have seen the investment in commodities as a source of speculative profits (Montenegro, 1998). In the case of Colombia, the forced displacements and the internal conflict that affects the lives of farmers and rural development must also be considered

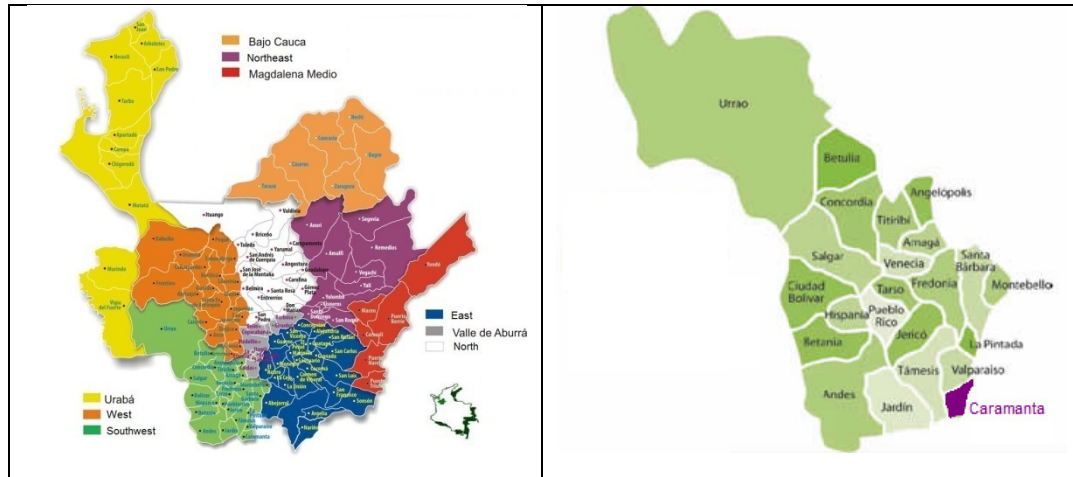
All these elements made Colombian coffee growers devise new strategies to reduce uncertainty and create alternative sources of income— in other words, to make coffee cultivation a profitable and sustainable activity. The FNCC (2010), for example, has fostered over the last decade innovative programs such as the promotion of Colombian coffee by opening Juan Valdez coffee shops around the world. They have promoted the increase in value-added with the production of specialty coffee. They also support crop diversification in coffee farms with the introduction of crops like corn and beans, in order to provide alternative sources of income to farmers. The FNCC has internationally advertised the Café de Colombia brand as a strategy of product differentiation and price improvement. Recently, the FNCC devised the young farmers program that seeks to encourage young people to continue to cultivate coffee by making them landowners. Furthermore, some producers have opted for alternatives such as ceasing to grow coffee, diversifying their crops, cultivating organic coffee, or selling their properties and immigrate to the city. In the municipality of Caramanta, a traditionally coffee town, a farmers' association became agroecological farmers. Despite difficulties, they have managed to combine the cultivation of organic coffee and other productive activities ensuring food security and sustainable sources of income.

3.4 The conventional Coffee Growers in Caramanta

Caramanta is located in Antioquia's southwest, 120 kilometres from Medellín, the province's capital (see Figure 8). Antioquia has always excelled as one of the coffee producer provinces in Colombia. For example, in 2009, Antioquia had the largest production volume in the

country. During that year, Antioquia produced 17.9% of the national total, that is, 86,170 tons of coffee (ENA, 2009). According to Junguito and Pizano (1991), the history of Antioquia in coffee production dates back to mid-nineteenth century when Antioquian colonization occurred, which expanded the agricultural frontier in western Colombia.

Figure 8 Maps of Antioquia and Southwest Region



Source: Secretaria de Agricultura y Desarrollo Rural.

The Antioquian colonization was notable because it was conducted by households which occupied unused lands in the south of Antioquia¹², and because it incorporated family labor into the production system. According to the authors, this system of small owners and consumers boosted the local economy and the regional development, differentiating the region from others. This organizational form favored the performance of coffee production because it created comparative advantages versus the large states system located in the Eastern¹³ and Cauca¹⁴ regions. As mentioned earlier, in the early twentieth century, large coffee farms were affected by the decline in coffee prices, shortages of labor and unsustainable external debt. Whereas the system of small and medium proprietors of the Western area could more effectively overcome the problems linked to the cultivation of coffee; since small farmers had

¹² The south of Antioquia was the area currently occupy by the provinces of Antioquia, Caldas, Quindío and Risaralda.

¹³ The Eastern region or Oriental region was the area currently occupy by the provinces of Santander, Boyacá, Cundinamarca, Tolima and Huila. After the first decade of the twentieth century, Tolima and Huila incorporated elements of the Antioquian colonization, a factor that facilitated their positioning as major coffee producers within the country.

¹⁴ Current Nariño, Valle, Cauca and Chocó provinces.

other crops, used family labor, and did not have external debts. Moreover, the fact that most of the population had access to productive resources had a positive effect on the consolidation of the regional economy, unlike other regions where productive resources and benefits were concentrated in a small segment of the population and they were not reflected in the regional development (Junguito and Pizano, 1991, p.186).

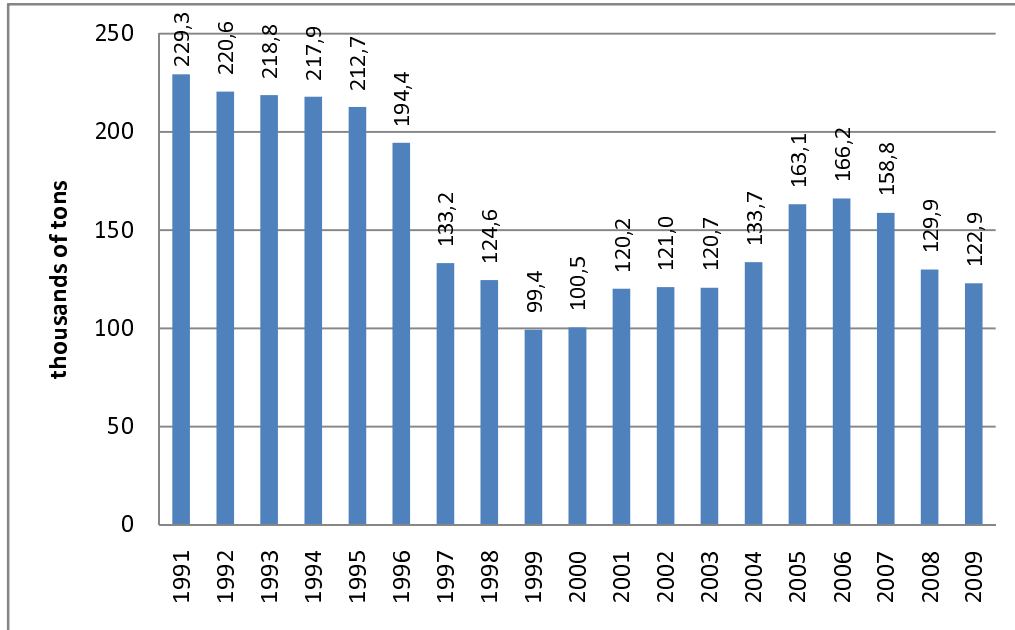
For its part, Caramanta is an Antioquian municipality where the main economic activity is farming. Its productive activities are quite diverse, since its climate is tropical mountain climate. The temperature is determined by the elevation. In the lowlands, where the climate is warm, the main activity is cattle farming. Before, these lands were dedicated to sugar cane crops; however, in recent years, small farmers have gradually sold their lands and new landowners have switched to cattle farming. The town midlands, where the climate is temperate, have traditionally been coffee crops zones. There are also sugar cane crops and domestic gardens. The highlands, where the climate is cold, are characterized by their water resources and the existence of some domestic gardens.

According to the Outline of Territorial Management 2007 (Esquema de Ordenamiento Territorial 2007- EOT), Caramanta has an area of 8250 ha, of which 65% is devoted to cattle and 23% is devoted to crops. The main crops are coffee (72% of the total crops), plantain associated with coffee (18%), sugarcane (7%), maize (1%), beans (1%), and granadilla (1%). Caramanta coffee growers are characterized by being small and medium producers. According to the Caramanta Development Plan 2005, coffee cultivation has been declining because farmers do not have enough resources to maintain the crops and due to the lack of labor.

In Figure 9 we can observe the volume of coffee production for Antioquia from 1991 to 2009. It is clear that since 1996 coffee production has drastically decreased, and the province has not been able to produce over 200 thousands of tons as it used to produce in the early nineties. As mentioned in the previous section, the years following 1997 were critical years for coffee production and the foreign price fell sharply due to the oversupply of coffee. In 2003, prices recovered and subsequently there was an increase in production (which is clearly reflected in the graph) but not enough to exceed the volumes achieved in the first half of the nineties. In recent years, since 2007, the volume of coffee production shows a downward trend in Antioquia as a result of the prolonged winter season, the increase in input prices, the

presence of diseases and pests (the Coffee Bean Borer or broca, and the rust), and the lack of labor.

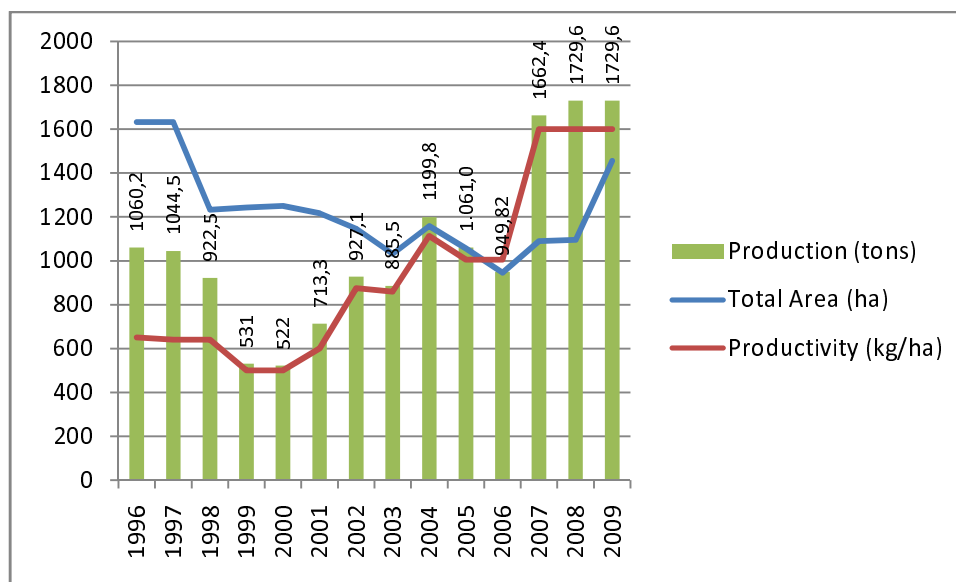
Figure 9 Volume of Coffee Production in Antioquia, 1991-2009



Source: Departamento Administrativo de Planeación (1995-2009)

According to the Statistical Yearbook of Agriculture Sector (*Anuario Estadístico del Sector Agropecuario*), in Caramanta the volume of production declined during the period between 1996 and 2000. Since 2001, production volumes started recovering and in 2004 exceeded the production levels of 13.16% in 1996. However, for the next two years the production fell again, and then rose by 44% in 2007. The last two years of data, 2008 and 2009, show a more stable performance in production volumes (see Figure 10). The volume of production recorded in the Statistical Yearbook for the past three years of the series is surprising how, taking into account that, according to the local coffee growers and the FNCC, the last three years have been tough for coffee production. Moreover, the data shows an increase in the productivity per hectare and the number of hectares. According to the interviews and surveys carried out with some conventional coffee growers in Caramanta, they insist that there is a downward trend in local production volumes. The local coffee growers make also reference to the production volumes before the nineties and during the early nineties. Unfortunately, in the case of Caramanta, municipal statistics in terms of agricultural production exist only since 1995.

Figure 10 Coffee Production, Hectares Cultivated, and Productivity in Caramanta, 1996-2009



Source: Statistical Yearbook of Agricultural Sector (1995 - 2009)

The local farmers recognize that the collapse of the International Coffee Agreement meant destabilization and uncertainty in coffee prices which had not been faced before. The lower prices resulted in the farmers' inability to pay off the debts they had acquired, primarily through the FNCC to sustain their crops. As some local coffee growers mention, in the late seventies and early eighties they started the process of modernization of crops, accompanied by the FNCC, and they also started to obtain loans to support the new techniques.

The modernization of coffee crops meant changing the traditional Pajarito variety to Colombia variety, now known as Castillo. The latter is resistant to rust, resolving at that time a destructive problem. However, this new variety requires the use of chemical fertilizers, which made the coffee growers initiate the consumption of this input, and thus began a chain of dependence on credits to finance the crop. Junguito and Pizano (1991, p.70) confirm this assessment of local farmers, stating that between 1975 and 1977 there was an accelerated process of modernization, mainly in the Southwest region of Antioquia (region where Caramanta is located). This process of modernization was promoted and enthusiastically embraced by institutions and coffee growers, since in 1975 began the period known as "coffee

boom." According to the authors, this boom occurred due to international good prices¹⁵, the availability of new technology, and the firm intention of the Government to stimulate the production of coffee (p.40).

The modernization of the crops for local farmers was a break with traditional forms of production inherited from previous generations. The FNCC agricultural technicians began to visit and advise farmers about new techniques. For example, bushes were fertilized before with a technique called "fertilizer in box (abono en cajuela)", that was to make a hole near the bush where farmers deposited fertile soil mixed with household waste. The new variety required the use of chemical fertilizers, which contributed to increased productivity and diminished the use of natural resources found on the farms, to be replaced by external factors.

Another change in farming techniques was the intensification of coffee cultivation and the abandonment of alternative crops. One of the farmers interviewed described how, in 1984, he inherited his father's farm and decided to cease plantation of around 1000 walnut trees in order to enhance his coffee crop. He did it based on the recommendation of the agricultural technicians and seized the opportunity of a new coffee boom. Today he regrets his decision as the current value of those walnut trees would finance his retirement. He lost financial security that the coffee cultivation never recovered. Another coffee grower interviewed described how he had to cut down the Guama trees planted on his farm as a condition to access credit granted by the FNCC. The Guama tree has been used as shade for coffee crops and supplies nitrogen to the soil, which reduces the use of fertilizers.

The decrease in crop diversification also resulted in loss of food security for some local farmers, since they were gradually abandoning subsistence crops and domestic gardens. Instead of getting their food directly from the estate, they got it from shops. In this regard, Junguito and Pizano (1991, p.225) relate how, after 1970, diversification became less important. Diversification as a policy instrument began with the Programme of Development and Diversification of the Coffee Areas in 1964, but the results were not very good because the coffee growers did not devote enough time to subsistence crops and other crops had problems in trade.

¹⁵ For example, in 1977 it reached a peak of U.S. \$ 2.36 per pound (FNCC, 2010).

Between 1968 and 1972, the second stage of the diversification program was implemented, this time addressing the requirements of the International Coffee Agreement. Diversification became an instrument of the International Coffee Organization (ICO) to regulate the global supply of grain. The third stage of the diversification programme was launched in 1974, but was unsuccessful bearing in mind that the ICO was no longer demanding diversification of the producing countries, and that the coffee boom had started (Junguito and Pizano 1991, p.225). Diversification plans continued running every 5 years, but the authors list some weaknesses that impeded their success: 1) the size of the diversification plans and resources were reduced, taking into account the importance of diversification in order to decrease the vulnerability of rural households engaged in cultivation, 2) diversification programs were not stable and were weakened by the presence of good prices and booms, 3) diversification programs were aimed at medium farmers or products that had a good business perspective or that were of central government interest, and 4) diversification programs were promoted through credits, leaving aside other instruments such as research, marketing and price supports.

The input prices for Caramanta coffee growers has also been a problematic element. A local coffee grower relates how before 1994, when the price of a “carga”, 125 kilograms of coffee, was good (about COP¹⁶ \$600,000), the sack of fertilizer equivalent to 50 kilograms was COP \$12,000, and the wages of workers was between COP \$5,000 and \$6,000 a day. At those prices the crop was profitable for the local coffee growers. After 1994, fertilizer prices increased and the sack exceeded \$100,000, and the price of labor increased. Currently, the average price of 125 kilograms of coffee is around COP \$700,000 (Agronet, 2010), the sack of fertilizer costs on average \$70,000, a minimum price of \$58,000. The working day costs between \$20,000 and \$25,000, and at harvest time, when labor is essential, can go up to \$ 35,000. With these prices coffee growers struggle to obtain a decent yield.

The following table shows the required ratio of inputs and labor required for a small crop, less than 5 ha, in Antioquia in 2010. During the first year, the proportion of inputs is much higher compared to labor. Over the next three years this proportion is reversed, because they include the costs associated with the harvest. The labor category includes activities related to the suitability of the land, planting, crop maintenance, harvesting, and post harvesting. Inputs

¹⁶ COP \$: Colombian pesos.

include planting materials, fertilizers, fungicides, insecticides, herbicides and agricultural adjuvants. Although the percentage of input costs decreases after the first year, it does not stop being a significant and essential rubric, especially if we consider that the productivity of high-tech cultivation depends on the timely implementation of these.

Table 1 Direct Costs and Percentage of Direct Costs of Production of Small High-tech Cultivation less than 5 ha, in Antioquia, March 2010 (COP\$)

	<i>Year 1</i>	<i>%</i>	<i>Year 2</i>	<i>%</i>	<i>Year 3</i>	<i>%</i>	<i>Year 4</i>	<i>%</i>
Labor	1,887,334	33	3,894,166	63	5,225,504	70	6,469,613	74
Inputs	3,835,917	67	2,248,326	37	2,234,176	30	2,234,176	26
Total	5,723,251		6,142,492		7,459,680		8,703,789	

Source: Sistema de Información de Precios de Insumos y Factores. Ministerio de Agricultura y Desarrollo Rural – Corporación Colombia Internacional. Agronet (2010).

As stated before, the drop in coffee prices from 1998 to 2004, together with the high input costs, made coffee production a low-profit activity. Furthermore, coffee growers had loans with financial institutions and many of them could not make payments on debts. Financial institutions began to press for payment of claims, and initiated proceedings to seize the land. It should be noted that between 1986 and 1989 there was a significant increase in the demand of loans by coffee growers driven by the increase in coffee prices and the promotion of grant programs seeking the plantations' renovation and diversification. According to Cuéllar (2004), in 1986, a small coffee boom prompted the coffee growers to increase their level of debt based on good prospects. But with the collapse of the International Coffee Agreement, the income of coffee growers began to be severely affected since 1992, a year in which the coffee growers had achieved a high level of accumulated debt. Thus, it was necessary to implement mechanisms to improve the situation of coffee growers such as refinancing debt programs between 1992 and 1995, and write off the debts to solve liquidity problems between 1995 and 1998 ¹⁷(Cuéllar, p.225).

For some authors, the way the coffee sector has been subsidized has not been most effective if the objective is the sustainability of the sector and the self-sufficiency of coffee growers. Cuellar (2004) states that credits have been a pro-cyclical instrument and have not contributed to stabilize the coffee growers' income. Thus, higher credit risks have been accumulated in the good phases of economic cycles but become evident in the recessive phases.

¹⁷ An example is the Act 223 of 1995 and the Decree 0303 of 1996 that were aimed at debt relief for small farmers.

For its part, Vallejo (2010) ensures that these subsidies and credits affect the productivity of the sector and warns that institutions should not re-use credit as the main tool to foster the production, because under current conditions, the success of a coffee producing country depends on the efficiency to produce and trade. Vallejo criticizes the tendency of the FNCC to keep Colombia as one of the major coffee producers at the expense of granting loans and subsidies, and proposes that the volume of production should not be the ultimate goal but the ability of producers and industry in general to compete in the market.

Returning to the case of Caramanta, other issues affecting the coffee yields are the presence of diseases and pests associated with the crop, and climate change. In the lower, warmer parts of the municipality, the Coffee Bean Borer most affects the crop. It is also present in the upper parts but to a lesser extent and is much easier to eradicate. The Coffee Bean Borer is a black bug the size of a pinhead that arrived in 1988. It expanded rapidly during the nineties in the Colombian territory, increasing from 25 thousand hectares affected in 1990 to 600 thousand in 1996, 50% of hectares cultivated in that year (FNCC, 2010 [a]). Control of this pest is not easy since the insect remains most of the time inside coffee cherries, which protects it from pesticides. The Caramanta coffee growers report that they solve this problem using the technique of the “Re-re”, that is first to collect timely mature grains every 15 days to 20 days, and second to review the bushes and the ground to ensure that there are no ripe or dried beans.

In the upper parts of Caramanta, the rust is a disease that impedes crop production. As mentioned in the previous section, the rust is a fungus that is easily distinguished by the presence of yellow dust on the underside of diseased leaves. The FNCC recommends planting Castillo variety which is resistant to rust. Other susceptible varieties, such as Borbon, Tipica, Maragogipe and Caturra, require the use of preventive fungicides such as Copper Oxychloride, Cyproconazol or Tiradimefon. (FNCC, 2010 [a]). Some local conventional coffee growers make use of copper oxychloride to deal with rust or to treat stems of bushes in poor condition. The oxychloride comes in powder, which is dissolved and sprayed over the crop. According to the interviews, the cost of this input is COP \$ 5,000 per kilo, and in previous years was between \$ 8,000 and \$ 10,000 per kilo, because it was used for coca plantations. The rust is a recurrent disease in Colombian coffee-growing areas and severely harms the industry. In the second half of 2010, the Ministry of Agriculture said that 50% of the country's crops are affected and

pledged to devote resources to the renewal of crops (Portfolio, 2010). In Antioquia, the FNCC estimated that 50% of the coffee crops in the province is affected, and according to peasants even varieties that were resistant to the disease are being affected (El Colombiano, 2010).

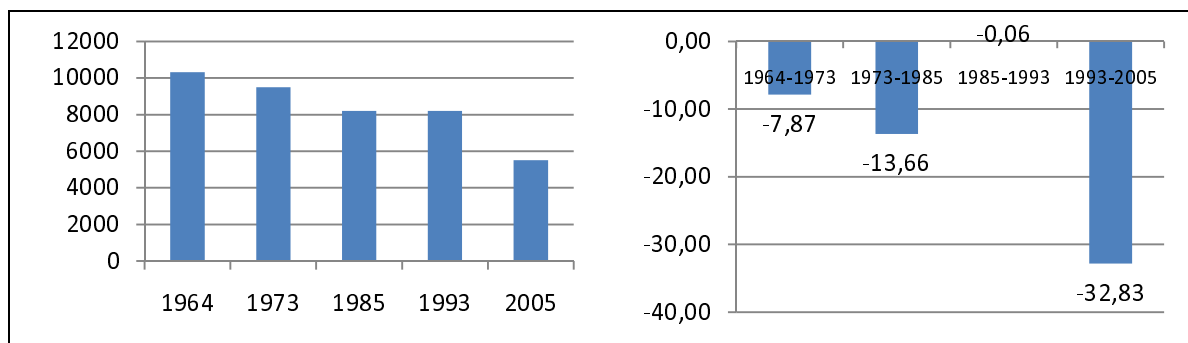
Another problem mentioned by local coffee growers is climate change during the last decade. One of the farmers stated how the climate is very different from the one their parents and grandparents faced. In the past, the climate was more stable and people knew with certainty when the rainy season and summer would occur. Today, it is impossible to know with certainty the weather, and coffee growers have to cope with prolonged periods of rain or drought that affect crops and yields. In the upper parts of the municipality, frosts severely damage the bushes' branches, and leave them unusable. Heavy rains can destroy the flowers of bushes blocking the exit of the fruit. Some coffee growers complain that the government and sector institutions do not take this problem more seriously. Also, they affirm that aid granted to compensate for losses by this factor remains in the hands of more powerful coffee growers and do not reach the small coffee growers. Vallejo (2010) states that the FNCC has failed in research and assistance on the flower drop caused by rain, as this problem has been already solved for other crops.

Finally, another problem that has affected coffee growers in Caramanta is the shortage of labor. As explained in this chapter, the coffee is labor intensive, but during the last decade the availability of labor has fallen in both Caramanta and the rest of the country's rural areas. In Figure 11, we can clearly see the magnitude of the decline of the population in Caramanta. Since 1964, the growth rate has been negative and worsened dramatically from 1993 to 2005, when the population decreased by 32.83%. In forty years, the population has decreased by 46.60%. According to the local coffee growers, the causes of this decline are several. For example, the situation of rural activities is no longer profitable for small producers. Also, the current legislation regarding health conditions and production requirements have left small farmers out of the market, as in the case of milk and pork. Moreover, the profitability of farming has been strongly affected by the way free trade agreements have been applied, since local products compete at a disadvantage with subsidized products at low prices from abroad.

Another reason for the shortage of labor is that younger generations prefer to immigrate to the city and find their sources of income from activities other than agriculture. The new generations are not enthusiastic about the prospect of continuing their life in the

countryside, because they realize the limited opportunities the rural areas offer. Although rural areas have improved in terms of providing basic services to the population (water, electricity, basic education, health, etc.), low incomes and limited employment opportunities keeps a significant percentage of population mired in poverty. According to the Census 2005, in Caramanta, the percentage of rural population in poverty is 39.6% and in extreme poverty is 30.5%. In other words, 70.1% of the population is poor (Administrative Department of Planning, 2010). Finally, in Colombia, armed conflict has also been responsible for the loss of land and the forced displacement of thousands of peasants. The territorial dispute among illegal armed groups has caused, in part, the forced displacement of peasants for several years and it has contributed to the shortage of labor in rural areas. According to the government agency, *Acción Social*, between 2000 and 2009, the number of displaced persons was 3,053,479, most of whom lived in rural areas. Vallejo (2010) affirms that the labor shortage is especially worrying in the case of coffee, taking into account that the cost of this input has increased and that modern crops are more labor intensive than traditional ones (150 labor days per hectare per compare to 100 labor days per hectare in a year).

Figure 11 Caramanta Population and Population Growth Rate, 1964 - 2005



Source: Anuario Estadístico de Antioquia, 1995 – 2008.

3.5 Strategies adopted by Caramanta coffee growers to cope with the crisis

From the surveys and interviews conducted during the field work, it can be deduced that the strategies adopted by local farmers to face the unstable situation in the coffee sector have been very diverse. Some have chosen to leave their own crops and migrate to cities or other rural areas in search of better opportunities. The peasants who migrate to cities are often linked

to trade-related activities or services either formally or informally, and those who move to other rural areas seek jobs in the primary sector.

Others have decided to replace the cultivation of coffee by other crops. One of the interviewed farmers tells how after nearly losing his estate due to the debts acquired with the cultivation of coffee, he left Caramanta for a few years but then returned to plant sugarcane for *panela*¹⁸ production. He does not regret having shifted his crop, since he recognizes that, although the situation of sugarcane is also difficult, at least he does not depend on loans to sustain his crop. He also recognizes that, after his experience with coffee, he has taken seriously crop diversification in order to reduce the risk of relying on only one crop. The diversification of crops has also been another strategy adopted by the conventional coffee growers. Consequently, they have reduced the percentage of coffee and have introduced other crops such as avocado and beans. They have also introduced in small proportions minor species. The reduction in coffee production has also been a way of dealing with labor shortages, because farmers recognize that without this input, in proper proportions, they would lose much of the harvest and investment.

Despite the difficulties faced by coffee growers in recent decades, many continue to farm the coffee according to conventional standards and with the support of the FNCC. These coffee growers depend on the credits and programs developed by government institutions for the development of their crops. For instance, Caramanta mayor's office and the Municipal Committee of Coffee Growers (the latter is a municipal-level entity representing the FNCC) are executing a coffee renovation plan which seeks to deliver 1,000,000 seedlings. The renewal of plantings aimed at increasing crop productivity through the replacement of very old plantings and maintenance of high-tech crops. The plan began in 2010 and has already managed to deliver 400,000 seedlings. This plan is carry out with the participation of the community. The mayor's office arranges a visit to a village and invites those interested in the project. They build the coffee nursery with the community and the mayor's office provides seeds, pesticides, and fertilizers. After 60 days they meet again with the community and spread the seedlings, and also deliver plastic bags needed for the transplant and more pesticides and fertilizers. When the

¹⁸ *Panela* is an unrefined food product, typical of Central and South America, which is basically a solid piece of sucrose and fructose obtained from the boiling and evaporation of sugarcane juice. Besides sugar, panela also contains large amounts of proteins, calcium, iron and ascorbic acid (Agronet, 2010).

seedlings are planted, the beneficiaries contact the mayor's office, and 2 technicians visit the crops and confirm the number of bushes planted. According to the number of bushes, the technicians deliver packages of fertilizers. The following year, they return again to deliver more fertilizer. These inputs are essential for crop growth and must be provided by the mayor's office and the Municipal Committee of Coffee Growers, since the peasants do not have enough resources to carry out the renewal by themselves.

Another program that the mayor's office and the Municipal Committee are developing is the delivery of coffee dryers. So far they had subsidized the purchase of 20 gas dryers which are used to dry coffee regardless of the weather, since the drying is becoming more complicated by the strong winter seasons. The diversification of crops is also fostered by the mayor's office, the Municipal Committee and the Governor of Antioquia. They are encouraging the cultivation of avocado and intend to plant 25 hectares. These institutions make deliveries of seeds, fertilizers and inputs. There are also programs aimed at improving coffee growers' quality of life, such as the construction of efficient cooking stoves that reduce the logging of native forests and the incidence of respiratory diseases. In the surveys and interviews, the conventional local coffee growers mention that they continue to use credit fostered by the government and the FNCC. Some loans have special features like no-interest payments for extended periods of time (eg. 7 years).

Although some conventional coffee growers recognize that under current conditions the coffee crop offers low profits, they prefer to continue with this system as it is something they have been doing for several years. They know that the FNCC is a strong institution in the country and will continue supporting them, even though this means that they have to continue financing their crops with credits and depending on the programs designed by the mayor and the FNCC. They fear leaving the coffee crop because unlike other crops, it has insured trade. All they have to do is bring their product to the Municipal Committee's office and then receive the money according to the domestic price fixed by the FNCC and government.

The last strategy counteracting the coffee crisis and adopted by some Caramanta coffee growers is the implementation of agroecological systems. One of the features of this system is the non-use of fertilizers and pesticides made from chemicals. Thus, they have entirely abandoned the conventional cultivation of coffee and decided to return to some of the traditional farming techniques from their parents and grandparents, as well as incorporating

new techniques developed for the functioning of agro-ecological farms. The next chapter deals with the case of these agro-ecological coffee growers and analyzes their experience taking into account the concepts of new rurality, innovation and empowerment.

CHAPTER 4 AGROECOLOGICAL FARMS AND COFEE GROWERS IN CARAMANTA

The experience of Caramanta agroecological coffee growers is a process worth being analyzed, since it is a tangible example of innovation and empowerment, which manages to integrate the territorial resources to address the coffee crisis and the difficult situation within the rural areas. The history of the Caramanta Small Farmers Association (ASAP), which is the umbrella organization of agroecological small farmers in Caramanta, shows clearly how local coffee growers passed from a state of economic dependence on institutional support to a state of self-sufficiency, which gives them more freedom to decide and choose the alternatives that best suit their own interests. The study of this experience allows us to see how the empowerment and innovation combined to make way for the consolidation of a community organization, a new production system, and improved quality of life, not only of coffee growers but other farmers who joined the effort.

4.1 The Caramanta Small Farmers Association's History: An Example of Empowerment.

The history of ASAP dates back to 1995 and is divided into two stages. The first relates to its origins where small farmers were used by medium and large producers of milk to achieve benefits for the most powerful producers. In the second stage, small farmers took control of the association and changed their production system by implementing agroecological systems, which allowed them to improve their living conditions in many ways. According to Machado (2001, p.113), the Colombian rural context is characterized by high land concentration, high poverty and extreme poverty indices, inefficient and chaotic institutions, intensive destruction of natural resources, and low peasant's participation in policy-making systems that impact their living conditions.

In 1995, large Caramanta dairy farmers, who were wealthy people, decided to form the ASAP as this would enable them to improve trade conditions and gather the necessary resources to join the Antioquia Dairy Cooperative (Cooperativa Lechera de Antioquia –Colanta). For this purpose, they invited coffee and sugarcane growers to join the organization, in addition to dairy farmers. The association allowed them to collect enough money for Colanta's membership

(approximately US\$27,000 in constant 2008 dollars), to provide the association with a storage facility and two milk tanks, and also to supply large dairy farms with their own tanks. Once the large dairy farmers installed the tanks on their farms, they decided to leave the association because it no longer meant a fruitful activity for their interests.

Although the association had members dedicated to the cultivation of coffee and sugar cane, they never had active involvement in the activities that were scheduled. According to interviews, sometimes meetings of the association managed to hold between 100 and 150 farmers, most of whom never actively participated or were taken into account; their participation was limited to signing the minutes of the meetings. The signed minutes enabled organization's leaders to legalize the proceedings and give legitimacy to the organization before private and public institutions, of which dairy farmers received benefits.

In 2001, the ASAP's founders decided to leave the association and gave to the mayor the responsibility of deciding on the future of the association. At that time, some small coffee growers in the company of other small farmers, members of the ASAP, had already taken the first steps towards achieving their own objectives through the election of representatives in local institutions. This group of coffee growers was tired of corruption in the municipal administration, disappointed with the results of the production of coffee, and tired of the dependence on external factors to carry out their daily work. In 1997, this group of peasants, with the support of the community action groups, managed to elect a council member, who was supposed to represent small farmer's interests in the local government. Unfortunately, once the councillor took office he turned his back to the community action boards and allied himself with one of the traditional political parties.

This did not stop the desire of this group of small farmers, about eight people, most coffee growers, to achieve representation in local government. Thus, they planned to support a mayoral candidate chosen by them. This group of small farmers was aware that to do so they should follow an institutional path that allowed the nomination of a candidate for mayor. They sought the support of traditional political parties visiting some politicians in both the municipality and the capital of the department. Many of the politicians approved the project and the ideas raised by the small farmers, but they offered their support as long as they receive some compensation and political favors. Under these circumstances, this group of coffee

growers rejected this tied support, since they wanted an independent movement integrated by the community without the intervention and the conditions imposed by traditional parties.

Finally, they won the support of a conservative politician who undertook to give the endorsement as independent movement without any compensation. This politician also helped the small farmers to contact the directors of the Indigenous Social Alliance (Alianza Social Indígena –ASI), a political party independent of the traditional parties. The ASI supported them to nominate a candidate for mayor, a young peasant to represent the community's interests and with qualities of leader was sought for the selection of the candidate.

This small group of farmers started the political campaign with very limited financial resources, but with the conviction that they could elect a mayor to represent their interests. Thus, they began to convene meetings and to visit rural households speaking to people about participation and rights, issues unknown to many of the farmers. After a close election, the young peasant leader was elected. He was an independent mayor, away from traditional political currents and the interests of people with greater economic power in the municipality.

The mayor took office in 2000 and he was the one who received the small farmers association from the large dairy farmers. The fact that the mayor who received the association was a peasant leader contributed to the development and consolidation of this organization. Since 2001, the ASAP started the second phase of its history and, according to its current members, its true activity. Without the pressures exerted by large producers and backed by an independent mayor, the ASAP convened a first meeting that brought together 36 people of 180 members enrolled in the association.

During the second stage of the ASAP, one of the first tasks was questioning the objectives and mission of the Association. ASAP's members realized that so far the activities had revolved around the dairy sector, thus excluding the participation of other farmers. Then, three committees were formed according to the agricultural vocation of the members: coffee committee, milk committee, and sugar cane committee. The mayor supported a training process for leading members of the association, and he was the one who introduced the idea of agroecological systems. Before taking office as mayor, during his work as an agricultural technologist, he had received training with the Network of Organic Agriculture (Red de Agricultura Biológica - Recab) and the Association of Indigenous and Peasant Producers from

Riosucio, Caldas (Asociación de Productores Indígenas y Campesinos de Riosucio Caldas - Asproinca).

The Recab and Asproinca are institutions that are committed to rural development by directly supporting rural families. The Recab, for example, aims at promoting alternative farming systems that are "economically viable, socially just, environmentally friendly and that foster a better quality of life" (Recab, 2010). For its part, Asproinca is an association that works with indigenous peasant families and peasant families to promote diversification of crops in an eco-friendly manner. A major goal of this association is to break peasants' dependence on coffee crops, since its leaders suffered the consequences of monocropping: the loss of food security and the loss of biodiversity. This association is located in Caldas, one of the three departments that are part of the Coffee Belt (Equator Initiative, 2010; and Asproinca, 2003).

The ASAP members then began a process of training in various topics, not only in agro-ecological systems but administrative topics focusing on the efficient functioning of a community organization. They were trained by the Corporation for Integral Education and Environmental Welfare (Corporación para la Educación Integral y el Bienestar Ambiental- CEIBA is an institution that promotes social change through education). ASAP members took advantage of these trainings, since they managed to continue their activities even when the mayor's office withdrew his support. The mayor ended his term in 2003 and the next mayor, despite being backed by members of the ASAP, withdrew his support for the organization and other community initiatives, which were weakened by the unfortunate interference of politicians with special interests.

ASAP's experience clearly illustrates the steps that must pass an organization to achieve empowerment. As mentioned in the first chapter, empowerment requires first that individuals identify their current role in society; second, an autonomous organization must be constituted; and third, that organization should undertake a process of mobilisation towards the set goals. In ASAP's case, the first step began when some members started questioning the mission and objectives of their organization. Members acknowledged that until 2000 they had been used by large dairy producers and that their participation had been unproductive. They also questioned that so far the organization had only taken into account milk production leaving aside other agricultural activities carried out in Caramanta. They took seriously the participation in the

election of local authorities and managed to elect a local government characterized by a genuine interest in the development of rural communities.

The second step toward empowerment is to build an autonomous organization. This meant for the ASAP the reformulation of the statutes and objectives that governed the organization until 2000. Moreover, the organization was supported in administrative and management topics by the mayor's office, in addition to the training in agroecological systems. In return, ASAP members committed to share this knowledge with their community. Consequently, they implemented the Farm Schools, which were some of the promoters' farms who had begun the implementation of the agroecological system. These farms were intended to show the agroecological techniques and the feasibility of achieving food security using the territorial elements.

The consolidation of the autonomy of the organization also was forced by the change of administration at the City Hall. As mentioned before, the mayor for the 2003-2007 period withdrew the support for the organization, therefore members and promoters, who until then had been devoted to the training and socialization of their new knowledge with the community, had to assume the administrative management and accounting of the ASAP. This was not an easy task for the promoters because they had to take over the management and administrative functions, and also they had to continue with the work at the agroecological farms and the farm schools without local support. ASAP leaders were trained in accounting, administration, writing, planning, and computer programs. It was a big effort taking into account that these promoters were peasants with limited financial resources, who apart from their voluntary job at the association had to work on their farms to support their families.

The accumulation of obligations led promoters to seek strategic alliances with other peasant and agroecological organizations in order to facilitate and empower the actions within the organization. At this stage of the ASAP, the third step toward empowerment can be observed: mobilization to achieve set goals. Promoters were aware of the responsibilities acquired, and they sought alliances with organizations such as the Caramanta Women Association, the Tamesis Peasant Families Association, Asproinca, and MAELA Colombia (the Latin American and Caribbean Agroecology Movement). The ASAP then drew the experience of these organizations that had more time with the implementation of agro-ecological systems, and the association also extended its activities to other community organizations in Caramanta.

The Association received also support from international NGOs such as the Fons Catala (Spain) and Swissaid. The support of Fons Catala began very early, and helped to overcome the change of mayor that left the ASAP without municipal support in 2003. However, this support has remained in time because ASAP members were able to perform management tasks such as project design, accountability, and evaluation of results.

This process of empowerment has had multiple results that not only benefit the ASAP members, they have also contributed to the community's well-being in Caramanta and in one village in the municipality of Caldas. From the organizational standpoint, since 2001, the ASAP has successfully integrated 78 peasant families to its association, who are members and are actively involved and committed to the objectives of the organization. The ASAP members have also formed 10 committees that not only reflect their productive vocation but also reflect the spirit of community and participatory leadership. Therefore, there are 6 committees aimed at the promotion of productive activities (a dairy committee, an organic coffee committee, a sugar cane committee, a credit committee, a commercialization committee, and a transformation committee); and there are 4 committees aimed at the reinforcement of social well-being (a gender equity committee, a women's committee, a youth committee, and a promoter committee).

The ASAP is well known by the other inhabitants of Caramanta and it has become an organization committed to the wellbeing of rural population in the municipality. Therefore, ASAP members also carry out activities aimed at inform and raise awareness among inhabitants about situations that affect their quality of life. Examples of this are the informative meetings on the management of water resources in the municipality which were carried out during the 2010. They have also been aware of the development of future open pit mining projects that would have serious consequences on the soil, flora and fauna. As we can observe, the ASAP members have not only achieved to consolidate its organization, but also they have improved the living conditions for coffee growers and other agroecological farmers, as we can seen below.

4.2 The Agroecology as an Innovative Strategy for Coffee Growers in Caramanta

In 2001, when the organization members analyzed their situation they found out that their main problems were food insecurity; monocropping; increased dependency on high priced

fertilizers, pesticides and genetically modified seeds; inadequate development policies from governmental institutions; the small valuation of rural culture; and the deterioration of their natural resources. Therefore, ASAP decided that its goals were to obtain food sovereignty, meet basic needs for rural households, support peasants' economic activities, and find fair trade commercialization channels.

ASAP members realized that to achieve their goals they should change the way they were producing. The conventional way had not provided them food security and had confined them to a system of credits that overwhelmed them and not allowed them to operate freely. The idea of agroecology was introduced to the community by the young peasant leader that ASAP supported for mayor, and who during his work as Agricultural Technician had known about agroecological experiences. ASAP members took awareness that it was not logical that they were experiencing food shortages since they owned land and had worked as farmers for several generations. One of the agroecological coffee grower respondents affirmed that coffee culture was so entrenched that there was coffee everywhere, even in the courtyard of the houses, but people hardly had food to eat. Additionally, the training and experiences provided by other organizations convinced ASAP members that the agroecology was a system that could be implemented without incurring large investments and making use of natural resources they had. In addition, they were not required to change their agricultural vocation, instead the agroecology allowed them to recover some traditional practices and it also opened new opportunities.

According to Ruiz-Rosado (2006), the agroecology has its origins in the decades of 70s and 80s. It emerges as opposed to modern farming practices¹⁹ that brought changes on landscapes, deterioration and declining of natural resources, dependence on the use of pesticides and its side effects on the environment and human health, the loss of biodiversity, and the loss of traditional knowledge. The author concludes that agroecology combines knowledge from various disciplines as diverse as ecology, agronomy, genetics, economics, engineering, sociology, etc., in addition to local knowledge. Gliessman (2002, p.13) defines the agroecology as "the application of basic concepts and ecological principles for the design and management of sustainable agroecosystems. The agroecology provides the knowledge and the

¹⁹ Modern agriculture refers to industrialized agriculture based on monoculture and using chemical fertilizers, pesticides and machinery (Toledo, 2002).

methodology to develop an agriculture that is on one hand environmentally friendly, and on the other hand highly productive and economically viable. "

ASAP members adopted agroecology as their innovative strategy. This would allow them to break the cycle of dependence on credits to finance their economic activities, to achieve food security, and to improve their quality of life. The process of empowerment that was taking place inside the organization was essential for ASAP members to internalize the knowledge about agroecology and to adapt this knowledge to their resources and own needs. ASAP members implemented four basic principles of agroecology: to recover, to preserve, to produce, and to consume. The first principle seeks to recover traditions, native animals and seeds, which for several generations offered food security to the inhabitants of Caramanta. The second principle focuses on the preservation of native seeds to conserve species variety and the autonomy of peasants. The third principle promotes the appropriate use of native seeds in agricultural activities in order to make them sustainable in the long term. The last principle encourages rural households to consume what they produce, recover traditional food, diminish their dependence on products bought on the market, and rely on family food production systems to achieve food sovereignty (ASAP, 2009).

In the case of local coffee growers, the transition from a conventional system to an agroecological system was not very complex, since for many years coffee growers had faced the coffee crisis were disillusioned with the conventional system, and did not have the resources to buy enough agrochemicals. The latter prompted farmers to try organic fertilizers and to evaluate the results of the application. At the same time, coffee growers realized the growing demand for organic products in the market and got to know the institutions linked to this market. ASAP members came into contact with Asprocafé. This institution provided them with training for the marketing of organic products. They learned that as organic farmers they would produce only half of what they used to produce with the use of agrochemicals. However, they would no longer have the pressure of credit to finance production. Instead, they would regain their food security, diversify their production, and obtain a better price for their coffee.

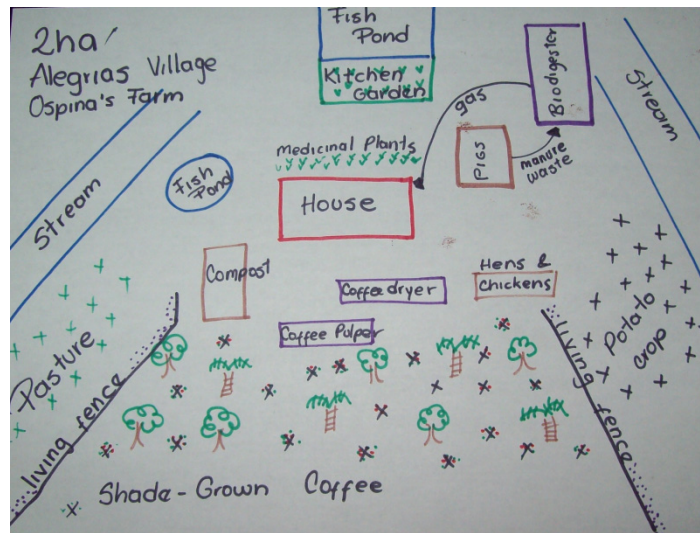
An agroecological farm is characterized by its many and varied elements that give rise to an efficient use of all resources. In general, an agroecological farm is equipped with a biodigestor, a high efficiency stove, composting systems, natural pest predators, and reservoirs with plants that contribute to the purification of domestic waste water, among others. Figure 12

shows the schema of an agroecological farm located on Caramanta, with an area of 2 hectares. The living fences that separate the main crops (potato and coffee) from pasture are mostly made with berries. The living fence serves as a barrier and contributes to pest control. Berries are used for home consumption and also to produce wine. The biodigester is a device that decomposes animal manure and household waste. The biodigester produces gas for cooking, which reduces deforestation and also reduces the incidence of respiratory diseases associated with the use of firewood for cooking. The biodigester also produces fertilizer for the coffee crops.

The compost system provides fertilizer to the agroecological farmers. Animal manure, food waste, shell beans, and coffee pulp are disposed there. All these elements decompose and become soil of excellent quality for fertilizing and planting. Farmers should take care of keeping the compost moist; chickens are in charge of stirring all the elements which serve for the proper functioning of the system; and on the bottom, worms are responsible for accelerating the decomposition. Some farms have reservoirs where fishes are bred, and they also have natural purification systems composed of several reservoirs. The domestic waste water goes into the reservoir system, and passes from one reservoir to another. The movement and plants that inhabit the reservoirs clean the waste water before being deposited in streams, reducing the polluting effect.

As already mentioned, agroecological farms have various crops. For example, on the farm that corresponds to Figure 12 there can be found coffee, potatoes, passion fruit, pineapple, bean, corn, cilantro, carrot, cabbage, celery, oregano, oranges, bananas, avocados, yucca, etc. These products are for home consumption, are given to relatives, are used to feed to animals, or are sold. Farms also have medicinal plants that are used to make beverages, produce soap or shampoo, and prepare biopesticides. In addition, there are woody trees and bamboo used to build corrals. The agroecological farms also have animals like chickens, hens, fishes, pigs, goats and cows. The agroecological system has changed the mindset of farmers. Before, they used to think they required large tracts of land to have large areas of cultivation and high volumes of production. Now, agroecological coffee growers and agroecological farmers know that a small plot of land can give them everything they need. They do not need large volumes of production of a single crop, but a little of many crops and animals.

Figure 12 Agroecological Farm in Caramanta (2 ha)



The agroecological system brought many benefits to coffee growers and farmers who adopted it. First, it cut their dependence on external resources which kept them at risk of losing their land, with little chance to innovate, and in a state of anxiety. Second, farmers regained their food security and diversified their diet including traditional and new products on their farms. Third, they added value to their products which has led to the production of wines, soaps, shampoos, cakes, among others. Finally, the use of these systems has diminished the pollution caused by farming and domestic activities, recovered native species, increased the availability of natural resources, and turned the environment into a safer and healthier one.

4.3 Results of the Comparative Study

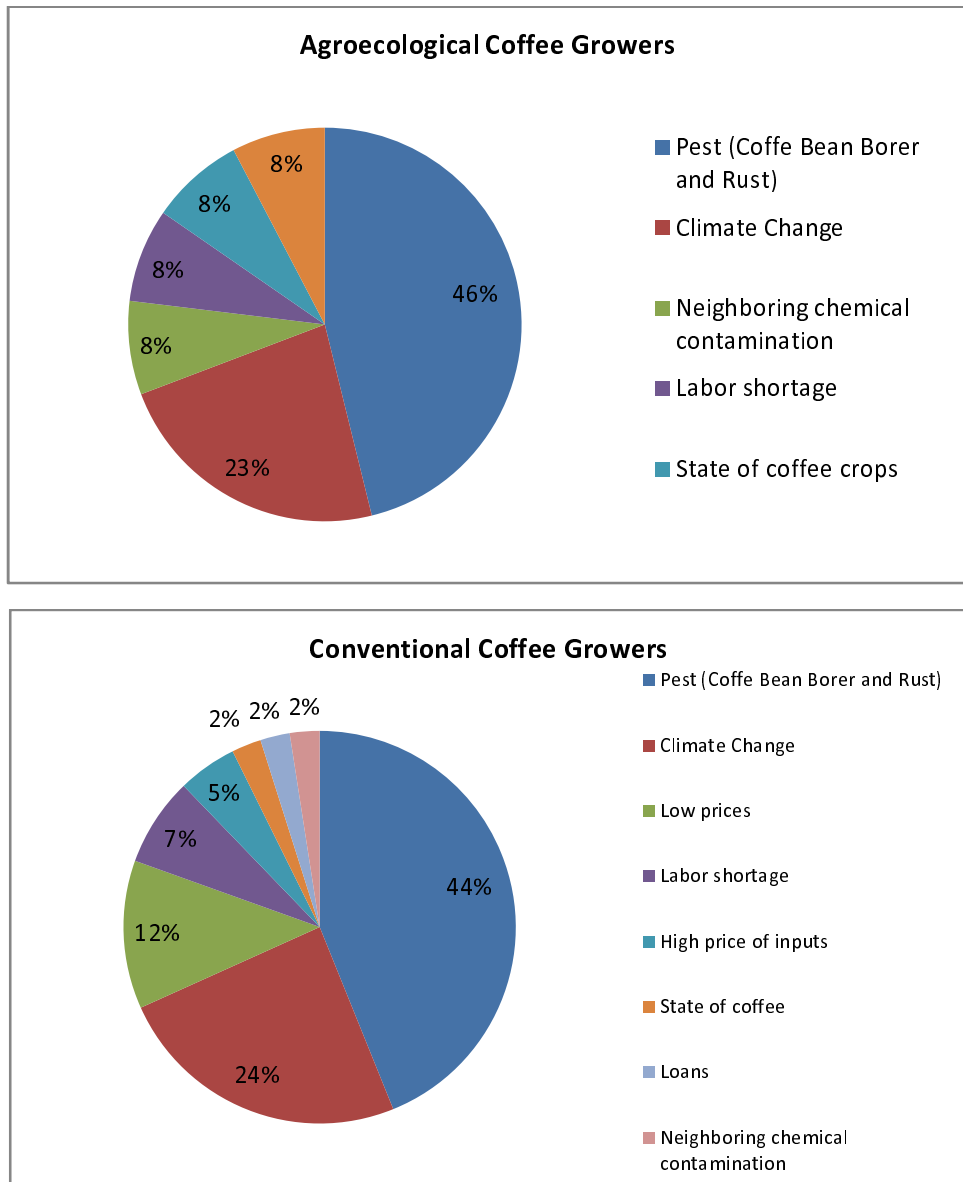
During the field work, some surveys were carried out with conventional and agroecological coffee growers. The aim of the survey was to inquire into some specific topics (productivity, problems associated with the cultivation of coffee, strategies to solve problems, institutional support, and diversification) and corroborate the information gathered during the interviews. The survey results should be viewed with caution because of the size of the sample cannot be taken as representative, however they can provide guidelines for future work seeking to investigate specific aspects of agroecological coffee growers.

One of the most surprising results was about productivity levels. The results confirm that the productivity of conventional coffee crops is superior to that of agroecological crops, but the difference is not 50% as perceived by farmers. According to surveys, agroecological crops'

productivity on average is around 1300 kilos per hectare, while average productivity of conventional crops is around 1600 kl/ha (data coincide with the statistics reported by the Statistical Yearbook of Agricultural Sector, see Figure 10), a difference less than 25%. The explanation of these results require further studies that take into account factors such as cost and availability of inputs, the state of the coffee crops, and the ability of farmers to cope with the problems linked to the crop.

Regarding the problems that most affect growers, both conventional and agro-ecological farmers agree that the biggest problem is the presence of pests (the Coffee Bean Borer and the rust). For both groups, the second most serious problem is climate change which has reduced production volumes. For agroecological coffee growers, other relevant problems are the shortage of labor, the state of coffee crops (coffee bushes are too old or unsuitable varieties), the low valuation of organic products (agroecological farmers believe that the price paid for organic products farmers should be higher), and the pollution produced by the fumigation of neighbour farms, especially livestock farms. For the group of conventional coffee growers, problems are similar but they are more affected by low prices. They also mention the shortage of labor, the poor state of the crops, and the contamination by the use of chemicals on neighbour farms. Some particular problems of conventional coffee growers are the high price of inputs and the inadequate credits to finance the crop (see Figure 13).

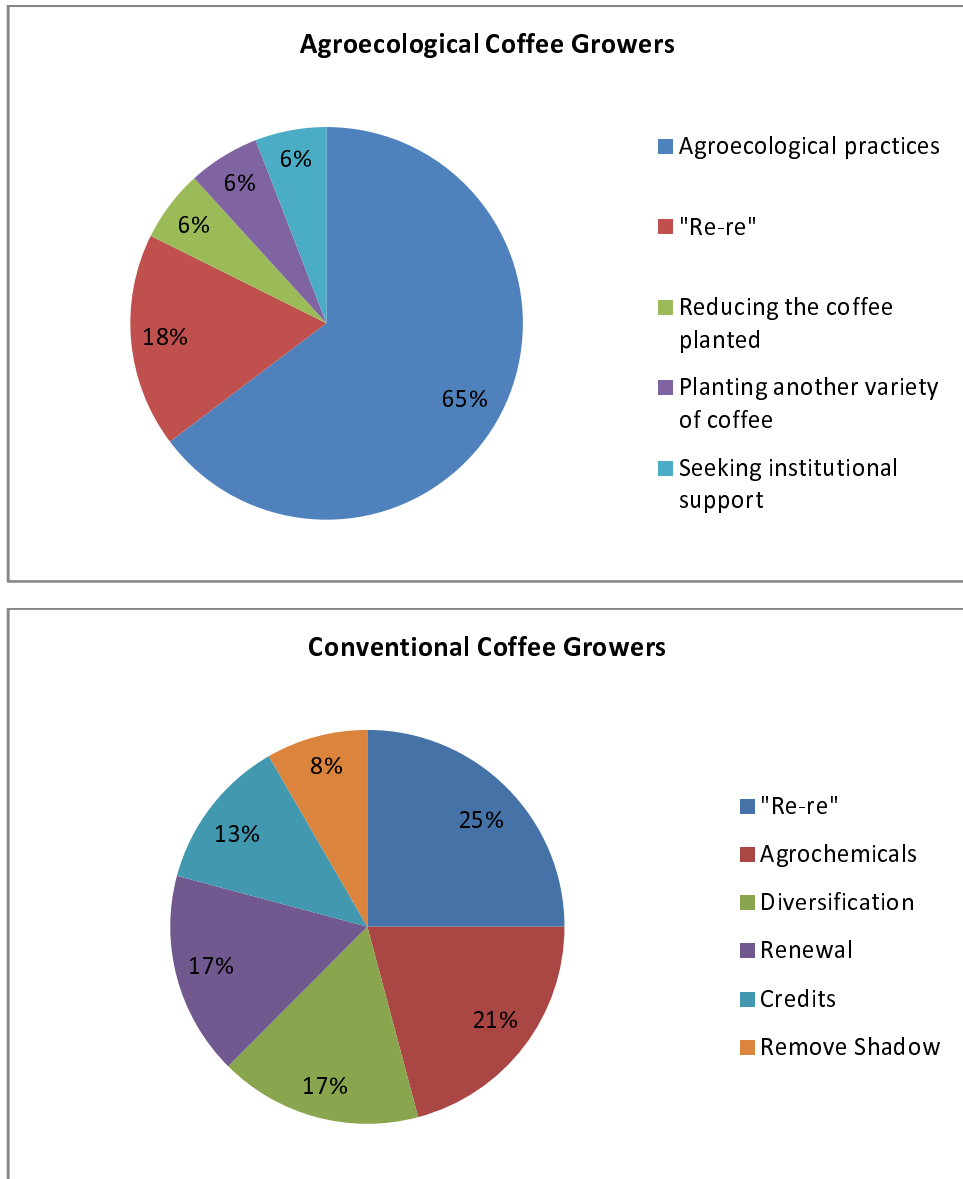
Figure 13 Problems Linked to the Coffee Crop



The surveys also inquired about the way in which farmers give solution to problems related to coffee crops. The agroecological coffee growers mostly rely on the use of agroecological techniques such as biopesticides, biofertilizers, and diversification. The second alternative more frequently used by the agroecological coffee growers is the "Re-re", which as previously explained is the collection of mature cherries every 15 days and the careful review of the bushes and the ground to ensure that there are ripe or dried beans. Other options mentioned by farmers are decreasing the amount of coffee planted due to labor shortage,

planting other varieties of coffee, and seeking institutional support. For its part, the conventional coffee growers rely primarily on the practice of "Re-re", secondly on the use of agrochemicals to fertilize and fumigate, thirdly on the renovation of coffee plantations and crop diversification, fourthly on loans, and finally on the removal of trees that provide shade to coffee plantations (see Figure 14).

Figure 14 Solutions to Problems Linked to Coffee Crops



These results show how agroecological coffee growers give solutions to the problems linked to the coffee crop through strategies that make use of resources provided directly by the

territory. This allows them to be more autonomous in the implementation of strategies, taking into account that the resources of these small farmers are limited. It also enables them to act more promptly because they do not depend on external factors. Furthermore, conventional coffee growers combine strategies that require the use of external and internal elements. The practice of "Re-re" is easily applied provided that there is enough labor. As expected, conventional coffee growers depend importantly on the use of agrochemicals to maintain their crops, as well as loans to finance investment in inputs and maintenance. It is interesting to observe how some conventional farmers mentioned diversification as an alternative to solve the problems associated with coffee crops. This reflects, in part, dissatisfaction with the practice of monocropping and interest in seeking alternative sources of income and food.

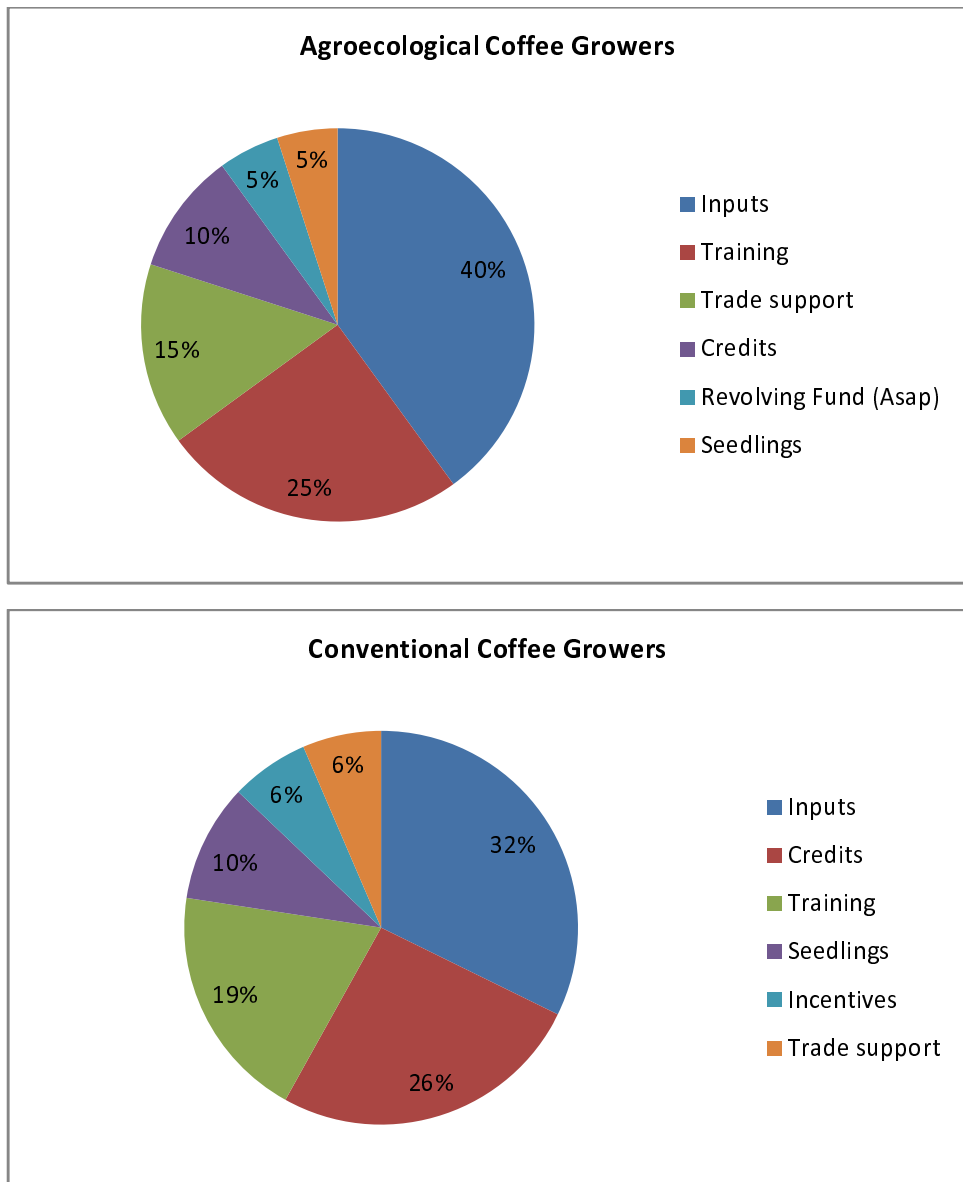
The institutional support is a significant element for agroecological and conventional coffee growers. In both groups surveyed, 90% of farmers expressed receiving institutional support. In the case of agroecological coffee growers, support is provided by five institutions: ASAP, the FNCC, the Mayor's Office, Asprocafé, and Swissaid. Conventional coffee growers mentioned only two institutions: the FNCC and the Mayor's Office. The agroecological farmers mentioned that, in order of importance, they receive inputs, training, trade support, credit support, and seedlings. Conventional farmers receive inputs, credit, training, seedlings, incentives and trade assistance. The fact that inputs are listed in both groups in the first place is related to the implementation of the renewal program by the Mayor's Office and the FNCC, as mentioned in the previous chapter. This plan includes both conventional and agroecological coffee growers. This plan also delivers seedlings (see Figure 15).

Both groups mention training as a form of institutional support, however such aid is more common for agroecological coffee growers. This reflects the support of ASAP and Asprocafé, which are institutions aimed to provide training on the adequate management of agroecological systems and organic crops in order to make agriculture sustainable in the long term. Both groups of coffee growers mention loans as a form of institutional support. This type of aid is more common in the group of conventional coffee growers: 25% of conventional coffee growers mention receiving credit, while 15% of agroecological coffee growers mention this type of aid (the percentage includes the support of the ASAP's revolving fund).

Both groups mention trade as a form of institutional support. In the case of agroecological farmers, the trade support refers to the additional COP \$1000 per kilo they get

over the price of conventional coffee. For conventional coffee growers, the trade support refer to the purchase of their product is guaranteed by the FNCC. Finally, the conventional coffee growers mention the incentives they receive for the implementation of practices recommended by the FNCC (eg, the renewal of old coffee bushes).

Figure 15 Forms of Institutional Support



The last issue addressed by the survey refers to the sources of income of coffee growers. The 68% of conventional coffee growers affirm that coffee is their main source of income, while 57% of agroecological coffee growers say that coffee is their main source of

income. Regarding sources of income other than coffee, as expected, agroecological farmers have a greater diversity of crops and products in relation to conventional coffee growers. Agroecological coffee growers receive income from the sale of avocado, plantain, milk, eggs, yucca, sugar cane, maize, fruit, wood, pigs, cattle, goats, fish, and other minor species. Conventional coffee growers mention plantain, sugar cane, passion fruit, beans, pigs, and cattle as alternative sources of income. This confirms the agroecological system flexibility that allows farmers to experiment with a larger number of crops and animals according to their interests and conditions.

4.4 Some aspects to consider about the sustainability of agroecological coffee growers

Although the implementation of agroecological systems and the performing of the ASAP is a successful example of empowerment and innovation, there are external factors that threaten this 10 years of successful dynamic and that represent new challenges for the members of the organization. Some problems are directly related to coffee crops and others relate to the local context.

To begin with, agroecological farmers need to be certified by an entity so that their products are sold in the market as organic products. Certifying institutions visit the farm or group of farms associated with an organization and verify that production is carried out under organic production standards. When the farm is certified, the product receives the seal of organic product and the farmer can begin his participation in fair trade markets. Currently, ASAP members are certified by FLO-Cert (Fair-trade Labelling Organization). This organization was created in 1977 in Germany because of "the need to give consumers guarantees that fair-trade products they buy are actually traded under fair conditions" (FLO-Cert, 2005). Taking into account that in most cases the relationship between producer and consumer is nonexistent, and the consumer cannot check directly that goods meet the requirements to be marketed as fair-trade and organic products.

Farmers must bear the costs related to the certification process. According to FLO-Cert (2007), an organization of small producers must pay € 500 for the application service to certify a single product; if they want to certify an additional product they must pay € 150 per product. This fee must be paid by the organization regardless of the outcome in terms of getting or not

the certification. Then, farmers must pay the cost of the certification in the first year. This cost varies according to the number of members in the organization. For example, an organization that has between 50 and 100 members must pay € 2000. This rate is calculated only to certify a product; if they wish to certify an additional product they must pay € 200. After this, farmers must pay an annual certification fee to maintain their status as organic and fair trade producers. In the case of an organization with between 50 and 100 members, the annual fee is € 1575 and € 175 per additional product. Moreover, FLO-Cert is not only responsible for certifying producers but for certifying the shops offering these products.

Although FLO-Cert affirms its mission is to promote fair trade for sustainable development and empowerment of disadvantaged producers and workers in developing countries, some ASAP members perceive this type of certification as a business opportunity for the international certifying institutions. However, they recognize that it is the only option they have at the moment. This has led to ASAP members and other Latin American agroecological farmers raise the need for certifying institutions closer to the agroecological organizations and their context, for this purpose they are working with MAELA (Agroecological Movement of Latin America and the Caribbean). The idea is to create an own certifying process, which during the first stage be recognized by MAELA member countries, and subsequently be recognized worldwide. They want an entity that is closer to the needs of farmers, their environment and their real possibilities, and no an institution dealing exclusively with products and production volumes.

The initiative of seeking self-certification also has to do with the farmers' need to be recognized not merely as organic farmers but as agroecological farmers. For members of the ASAP is clear that the term organic refers to the production of chemical-free food, and that this term does not cover all aspects of the agroecological systems. The agroecology includes vital elements for the wellbeing of rural communities such as food security, decent living conditions and coverage of basic needs, organizational capacity and participation in local institutions, sustainable production, and conservation of natural resources. This set of elements differentiates the agroecological system from the conventional system, not only the elimination of agrochemicals. According to ASAP members, the way the certification is carried out is inadequate, because it does not fully appreciate the efforts undertaken by farmers, and also

imposes requirements to be met to ensure the trade of products without taking into account the particular conditions of each community.

Agroecological farmers face another challenge that is the multiplicity of terms that today are handled around the organic market, and the confusion that these terms create for consumers. In Antioquia, for example, the Regional Autonomous Corporations, responsible for the regulation and execution of projects concerning the environment, are promoting green markets. According to Cornare (2010), green markets include products that generate less environmental impact, and those products derived from sustainable use of biodiversity. Therefore, clean products and agroecological products have access to these green markets. Clean products are defined as products that rationally use agrochemicals, are less labor intensive, and may be a transitional step towards agroecological production. For its part, agroecological products are 100% free of chemicals, and require all production within the farm is carried out under the agroecological standards to prevent any contamination, i.e. requires the conversion of land and other subsystems.

In the case of coffee, the FNCC has fostered the production of specialty coffees due to the boom of organic products and products with designation of origin²⁰. These coffees can be conventionally, cleanly or organically produced, and they stand out for their quality and taste associated with their origin and careful production. The FNCC promotes three types of specialty coffee: Coffees of Origin (coffee is produced in a specific place and it is sold without being mixed with other coffees), Sustainable Coffees (it is taken into account social, economic, and environmental elements linked to the production), and Certified Coffees (these coffees meet international standards defined by certification agencies). The specialty coffee production is promoted through incentives and better prices by the FNCC. According to the FNCC (2010), the types of sustainable coffees that they promote are subdivided into four: Environmentally Friendly, Social Content, Organic Coffee, and Good Inside.

Agroecological coffee growers perceive the competition with specialty coffee as an unfair competition, because it has caused lower prices for organic coffee. The problem is that

²⁰ The products with designation of origin use the name of the place where they are produced as marketing strategy. They provide consumers with information on the quality and characteristics associated to the geographical environment where production, transformation, and manufacture take place (European Commission, 2010).

consumers do not easily distinguish between clean and agroecological products and tend to equate them. Without doubt, this affects the organic coffee prices without considering that organic coffee requires more effort and has specific attributes, which should be valued with higher prices. Moreover, the possibility of producing cleanly has discouraged some farmers to continue in the agroecological system. The agroecological system is labor intensive during the first three years that are required for the conversion process, and some farmers are unwilling to take on this commitment. Also, in some cases, it is easier for farmers to choose clean production considering that peasants have been accustomed to the quick results based on the application of agrochemicals and have not experienced the benefits of agro-ecological farming. The clean production promotes the rational use of agrochemicals, but still perpetuates farmers' dependence on external elements such as agrochemicals, seeds, subsidies, etc.

Finally, the situation of rural communities in Colombia is not easy taking into account the high rates of poverty, the presence of illegal armed groups, the high land concentration, and the design of development policies that do not favour sustainability and quality of life of small farmers. Currently, ASAP has been carrying out campaigns to inform the community about government projects that have a direct effect on the production and wellbeing of small farmers. An example of this is the inclusion of mining as a productive activity within the Caramanta Outline of Territorial Management since 2004. According to the Observatory of Mining Conflicts in Latin America (OCMAL, 2010), the presence of two mining companies in Caramanta (Kedahda Society since 2002, linked to the company AngloGold Ashanti, and later the Canadian Goldfields Company Limited) have led to changes that threaten the permanence of small farmers in the area. The OCMAL states that there has been massive purchase of land to small farmers, peasant displacement, presence of illegal armed groups, murders, purchase of water sources, and damage to natural resources. These actions coincide with the interests of gold mining in the area of El Salto, located in southern Caramanta (region bordered by Marmato that is a municipality characterized by its gold mining vocation). This situation concerns and hurts small farmers in the municipality, since the inclusion of mining within the municipality's development plan was not coordinated with the community, peasants have not received sufficient information from local authorities or mining companies on exploration projects, and the method of extracting chosen is open pit mining, which generates significant impacts on natural resources.

CHAPTER 5 CONCLUSION

There is no doubt that the ASAP's formation and consolidation is clear example of empowerment and innovation. ASAP's experiences show how a group of small farmers becomes aware of their capabilities and skills to undertake processes that lead to improved living conditions. Analyzing this process shows and confirms certain elements studied and described by scholars on empowerment and innovation (Murguialday et. Al. 2006; IFAD, 2006, Perrin, 2002). First, empowerment is a process that requires time and cannot be conceived as an immediate result of a training program. In the case of ASAP, the first step towards empowerment, which refers to individuals being able to identify their current situation within society and gain confidence as active individuals in society, took about five years. During this stage ASAP members questioned their role within the organization and the community, identified their main problems, and gradually began to take action to elect their own representatives to the local government. The following steps towards the empowerment, the establishment of an autonomous organization and mobilization towards the goals set, took about three years. ASAP members received multiple trainings aimed at achieving an autonomous organization. They also set clear objectives and decided how to carry them out.

Second, innovative processes do not need to be complicated processes involving large investments. As stated by Perrin (2002), innovation is a novel way of doing things better or different. The adoption of the agroecological system by the ASAP as the primary means to achieve its goals is an example of innovation, which currently directly benefits 78 households. The implementation of agroecological systems meant a break with conventional forms of production carried out for more than 30 years, particularly in the case of coffee growers. The coffee crisis and the precarious situation of small farmers led ASAP members to incorporate a new production system broke the dependence on external resources and recovered ancient agricultural practices. The success of the innovation process was supported by the community's initiative to adopt the system, the existent connection between the agroecological system and the farmers' interests, the recovery and preservation of traditional practices, the respect for the traditional vocation of farmers, the system flexibility to adjust to the territorial characteristics, and the firm belief of the community in their ability to achieve a substantial improvement of living conditions and environment.

For coffee growers, the agroecology led to a substantial improvement in their quality of life, since it gave them tranquillity and food security, something they lacked with the conventional cultivation of coffee. The collapse of the International Coffee Agreement in 1989 and the subsequent crisis in the coffee sector caused the loss of business profitability and led coffee growers to a difficult situation. Some local coffee growers decided to leave their farms and go to the city, others had to sell their land due to the inability to pay their debts, others changed their agricultural activity, some continued with the conventional system despite the problems, and others implemented the agroecological system. Nowadays, agroecological coffee growers feel relieved and happy with this system. They know that although under this system they do not produce high volumes of coffee in relation to the conventional system, it provides them with food security, the ability to meet their basic needs, independence in its decision-making on what to produce and how to produce, income from various crops and minor species, financial tranquility, sustainability of productive activities and environmental conservation.

The ASAP's empowerment as rural organization has not only directly benefited its members, but the rural population in general. The recognition they have achieved by local authorities and the direct involvement, in some cases, as members of local authorities have allowed them to contribute to municipal projects. ASAP has become a visible organization in the community, and its leaders are capable of assuming an independent and critical position on the projects and programs that affect the community. ASAP members organize informative meetings, motivate other farmers to play a participatory role, are aware of issues and projects that affect them, and establish strategic alliances with organizations that enable them to strengthen their actions. ASAP also provides training and shares its experiences with rural communities and university students from other regions.

Although ASAP has had a very successful experience for the past 10 years, ASAP members still have to face some situations that put at risk the benefits achieved so far. ASAP members realise that they should carry out actions to achieve a fairer coffee certification process according to their interests. They also recognize that they must find strategies to differentiate agroecological products from other products found at green markets to compete under more equitable terms. Finally, mining programs in Caramanta concern the rural community in general due to the possible environmental consequences and negative effects on production and quality of life of the inhabitants of Caramanta.

Finally, the manner in which ASAP members adopted the agroecological system is consistent with the characteristics of rural development proposals identified by the New Rurality. For coffee growers, the agroecology involved the adoption of production strategies more in line with an integral vision of the territory they occupy. They left aside the sectoral vision, which had been adopted for over 30 years, and that led them to adopt monocropping practices, to become highly dependent producers on loans and subsidies, to become vulnerable individuals due to the loss of food security, and to play passive roles when facing programs and development plans imposed by local and sectoral institutions. The integral vision of the territory through the agroecology allowed small farmers to discover alternative sources of income with the incorporation of new crops and the breeding of minor species. In addition, it allowed them to recover some productive practices of their parents and grandparents, who did not depend on chemicals for optimum results in their crops. The agroecology has also made possible the execution of economic activities in a sustainable manner without compromising the endowment of natural resources of the territory and the health of farmers and their families.

Without doubt, the implementation of the agroecological system by coffee growers and other ASAP members is an example for rural communities and those responsible for the devise of rural development policies. This experience shows clearly how it is possible to give solution to a critical situation by making use of territorial resources, taking the interests of the affected community as the central axis. The adoption of the agroecology did not have as ultimate goal the improvement of effectiveness and efficiency of the coffee crops. On the contrary, farmers were aware that coffee production volumes would be reduced since the beginning of the process. The coffee growers focused on the benefits that the agroecological system offered to their quality of life. During this experience, ASAP members managed to implement a development strategy able to meet the needs of rural households in a comprehensive manner taking into account their interests, culture, history and productive vocation. Thus, this group of farmers broke with a development strategy that put them in the service of coffee production, and became individuals capable of using territorial resources to achieve wellbeing, moreover in a sustainable way.

Bibliography

- Accion Social, Agencia Presidencial para la Accion Social y la Cooperacion Internacional. Estadísticas de la poblacion desplazada. in Presidencia Republica de Colombia [database online]. Bogota, 2009 [cited August, 2009 2009]. Available from <http://www.accionsocial.gov.co/contenido/contenido.aspx?catID=383&conID=556>.
- Agronet. Análisis - estadísticas. in Ministerio de Agricultura y Desarrollo Rural Colombia [database online]. Bogotá, 2010 Accessed, 2010]. Available from <http://www.agronet.gov.co/agronetweb/AnalisisEstadisticas/tabid/73/Default.aspx>.
- Arias, Ferney. 2010. Marco tulio pelea a diario contra la roya. *El Colombiano*, September 26, 2010, 2010, sec Negocios.
- ASAP. 2009. Transgénicos y semillas mejoras equivalen? dosis personal. *Eco Alternativo Boletín De La Asociación Agropecuaria ASAP Caramanta*(4) (March 2009): 8.
- Asproinca. Recuperación de los conocimientos tradicionales y del uso de las plantas medicinales. in Grupo Semillas [database online]. 2003 [cited September 2010 2010]. Available from <http://www.semillas.org.co/sitio.shtml?apc=a1a1--&x=20154702>.
- Balcázar, Á. 1986. Cambio técnico en la agricultura. In *Problemas agrarios colombianos.*, ed. A. Machado. Bogotá: Cega-SigloXIX.
- Bejarano, Jesús. 1984. La agricultura colombiana en un contexto de crisis. *Pensamiento Iberoamericano Revista De Economía Política* 8 .
- Cadena, Gabriel. 2005. Desarrollos científicos de cenicafé en la última década. *Revista De La Academia Colombiana De Ciencias Exactas, Físicas y Naturales* XXIX (110) (March 2005): 89.
- Cega. 2001. *Los desafíos rurales en colombia. elemntos institucionales del éxito*. Bogotá: Tercer Mundo Editores.
- Chiriboga, Manuel. Innovación, conocimiento y desarrollo rural. *Intercambios* 7, (74) (2007), http://www.rimisp.org/boletin_intercambios/index_boletin.php?id_boletin=23 (accessed 2010).
- Cornare. Biocomercio sostenible. in Cornare [database online]. Medellín, 2010 [cited October 2010 2010]. Available from http://www.cornare.gov.co/index.php?option=com_content&view=article&id=194&Itemid=272&lang=es.
- Cuéllar, Fidel. 2004. *El crédito cafetero en colombia: Economía, instituciones y política 1920-2002*. Bogotá: Ediciones Uniandes.

- Departamento Administrativo de Planeación. Atlas veredal. in Gobernación de Antioquia [database online]. Medellín, 2010 [cited September 2010 2010]. Available from <http://planeacion.antioquia.gov.co/noticias/prensa16.html>.
- . 1995 - 2009. *Anuario estadístico de antioquia*. Medellín: Gobernación de Antioquia, .
- Echeverri, Rafael, and María Ribero. 2002. *Nueva ruralidad. visión del territorio en américa latina y el caribe* Instituto Interamericano de Cooperación para la Agricultura, IICA.
- ECLAC. CEPALSTAT data bases and statistical publications. in ECLAC [database online]. 2010 [cited 07/28 2010]. Available from <http://websie.eclac.cl/infest/ajax/cepalstat.asp?carpeta=estadisticas> (accessed 2010).
- Equator Initive. Asociación de productores indígenas y campesinos de riosucio caldas asproinca - colombia. in Equator Initive [database online]. [cited September 2010 2010]. Available from http://www.equatorinitiative.org/index.php?option=com_content&view=article&id=541%3Aasproinca&catid=107%3Aequator-prize-winners-2008&Itemid=541&lang=en.
- European Commission. EU agricultural product quality policy. in European Commision [database online]. 2010 [cited October 2010 2010]. Available from http://ec.europa.eu/agriculture/quality/index_en.htm.
- Federación Nacional de Cafeteros de Colombia. Colombian coffee growers federation. in Colombian Coffee Growers Federation [database online]. 2010 [cited June 2010 2010]. Available from <http://www.federaciondefcafeteros.org/particulares/en/>.
- . 2009. *El comportamiento de la industria cafetera colombiana durante 2008*. Bogotá: Federación Nacional de Cafeteros de Colombia, .
- . 2008. *El comportamiento de la industria cafetera colombiana durante 2007*. Bogotá: Federacion Nacional de Cafeteros de Colombia, .
- . 2004. *El comportamiento de la industria cafetera colombiana durante 2003*. Bogotá: Federación Nacional de Cafeteros de Colombia, , <http://www.federaciondefcafeteros.org/static/files/industria%20cafetera%202003.pdf> (accessed August 2010).
- . 2003. *El comportamiento de la industria cafetera colombiana durante 2002*. Bogotá: Federación Nacional de Cafeteros de Colombia, , <http://www.federaciondefcafeteros.org/static/files/Comportamiento%20Industria%20Cafetera%202002.pdf> (accessed August 2010).
- Federación Nacional de Cafeteros de Colombia (a). A special product. in Federación Nacional de Cafeteros de Colombia [database online]. Bogota, 2010 [cited July 2010 2010]. Available from http://www.cafedecolombia.com/particulares/en/sobre_el_cafe/el_cafe/ (accessed 2010).

- Federación Nacional de Cafeteros de Colombia (b). 2010. *Informe al congreso cafetero del gerente general 2009*. Bogotá: Federación Nacional de Cafeteros de Colombia;, , <http://mailin.cafedecolombia.com/productivo/Congreso.nsf/0ad1f06a9990bec005256f5700776202/877185c8c8a74a8805257680005f9f9a?OpenDocument> (accessed August 2010).
- Federación Nacional de Cafeteros de Colombia (c). 2010. *El comportamiento de la industria cafetera colombiana durante 2009*. Bogotá: Federación Nacional de Cafeteros de Colombia,
- FLO-Cert. 2007. *FLO-CERT producer certification fees small producer organizations*.
- — —. 2005. *Comercio justo informaciones para productores*, [http://www.eed.de/fix/files/doc/eed fh comercio justo prod 2005 spa.pdf](http://www.eed.de/fix/files/doc/eed_fh_comercio_justo_prod_2005_spa.pdf) (accessed October 2010).
- Gliessman, Stephen R. 2002. *Agroecología: Procesos ecológicos en agricultura sostenible*. Costa Rica: CATIE.
- Gómez E, Sergio. 2008. Nueva ruralidad. fundamentos teóricos y necesidad de avances empíricos. In *La nueva ruralidad en américa latina. avances teóricos y evidencias empíricas.*, 45. Bogota: Editorial Pontificia Universidad Javeriana.
- Gómez, Alberto, Gonzalo Restrepo, and Pablo González. 2004. Turismo en el eje cafetero. *Ensayos Sobre Economía Regional* (Junio, 2004).
- Grammont, Hubert C. 2008. El concepto de nueva ruralidad. In *La nueva ruralidad en américa latina. avances teóricos y evidencias empíricas.*, 23. Bogotá: Editorial Pontificia Universidad Javeriana.
- IFAD. 2006. Los retos de la innovación para la población rural pobre. Paper presented at Consejo de Gobernadores 29 período de sesiones, Rome, <http://www.ifad.org/gbdocs/gc/29/s/GC-29-L-13.pdf> (accessed 2010).
- International Coffee Organization. Historical data. in International Coffee Organization [database online]. London, 2010 [cited August 2010 2010]. Available from http://www.ico.org/new_historical.asp.
- Junguito, Roberto, and Diego Pizano. 1991. *Producción de café en colombia*. Bogotá: Fedesarrollo. Fondo Cultural Cafetero.
- López Castaño, Hugo, Alonso Cardona Arango, and Jorge García Zuluaga. 2000. *Empleo y pobreza rural 1988-1997*. [Santafé de Bogotá, Colombia]: CIDE, CEGA, IICA, TM Editores.
- Machado, Absalón. 2001. Reforma agraria, desarrollo rural y desplazados. In *Desplazamiento forzado en colombia: Conflicto, paz y desarrollo.*, ed. Consultoria para los derechos hunamos y el desplazamiento - Codhes, 111-123. Bogotá: Editorial Kimpress.

- Machado, Absalón, Rafael Vásquez, and Carlos Salgado. 2004. Nueva ruralidad, perspectiva evolutiva e institucionalidad pública y privada. In *La academia y el sector rural*. Vol. 1, 66. Bogotá: Universidad Nacional de Colombia.
- Montenegro, Santiago. 1998. *La caficultura colombiana a finales del siglo XX*. Bogotá: Centro de Estudios sobre Desarrollo Económico Universidad de los Andes (CEDE), 16.
- Murguialday, Clara, Pérez de Armiño, Karlos and Eizagirre, Marlen. Empoderamiento. in Hegoa [database online]. 2006 [cited July, 2010 2010]. Available from <http://www.dicc.hegoa.ehu.es/listar/mostrar/86> (accessed July 30, 2010).
- Nárvaez, Diego, and Bibiana Vargas. 2007. Racionalidad campesina y estrategias sociales de los caficultores caldenses. *Revista De Antropología y Sociología Virajes* 9 (January - December 2007): 257.
- OCMAL - Observatorio de Conflictos Mineros de América Latina. Sistema de información para la gestión comunitaria de conflictos socio-ambientales mineros en latinoamérica. 2009 [cited October 2010 2010]. Available from http://www.olca.cl/ocmal/ds_conf.php?nota=Conflicto&p_busca=77.
- Pérez, Antonio, and José M. Caballero. 2003. *La nueva ruralidad en europa y su interés para américa latina*. Roma: FAO / Banco Mundial.
- Pérez, Edelmira. 2001. Hacia una nueva visión de lo rural. In *¿Una nueva ruralidad en américa latina?*, 17. Buenos Aires: CLACSO.
- Perrin, Burt. 2002. How to and how not to evaluate innovation. *Evaluation* 8 (1) (January 2002): 13.
- Pizano, Diego. 2001. *El café en la encrucijada. evolución y perspectivas*. Libros de cambio. Bogotá: Alfaomega S.A.
- Portafolio. 2010. Destinan 86.000 millones de pesos para combatir la roya. *Portafolio*, October 2010, 2010, sec Economía hoy. http://www.portafolio.com.co/economia/economiahoy/destinan-86000-millones-de-pesos-para-combatir-la-roya_8022841-3 (accessed October 2010).
- Ramirez, Renzo. 2009. La broca del café en líbano. impacto socioproductivo y cultural en los años 90. *Revista De Estudios Sociales* 32 (April 2009): 158, <http://res.uniandes.edu.co/view.php/585/1.php> (accessed September 2010).
- Red Colombiana de Agricultura Biológica. Recab. in Recab [database online]. [cited September 2010 2010]. Available from <http://www.recab.org/>.
- Rettberg, Angelika. 2010. Global markets, local conflict: Violence in the colombian coffee region after the breakdown of the international coffee agreement. *Latin American Perspectives* 37 (2): 111, <http://lap.sagepub.com/content/37/2/111> (accessed July 2010).

- Riella, Alberto, and Paola Mascheroni. 2008. Evidencias empíricas sobre la pertinencia de la nueva ruralidad en Uruguay. In *La nueva ruralidad en América Latina. Avances teóricos y evidencias empíricas.*, 151. Bogotá: Editorial Pontificia Universidad Javeriana.
- Ruiz Rosado, Octavio. 2006. Agroecología: Una disciplina que tiende a la transdisciplina. *INCI* 31 (2) (February 2006): 140, http://www.scielo.org.ve/scielo.php?script=sci_arttext&pid=S0378-18442006000200011&lng=es&nrm=iso. (accessed October 2010).
- Salgado Araméndez, Carlos. 2004. Estado del arte sobre desarrollo rural. In *La academia y el sector rural 3.*, eds. Rocio Rubio, Carlos Salgado Araméndez and Enrique López Enciso. Vol. 3, 155. Bogotá: Universidad Nacional de Colombia.
- Secretaría de Agricultura y Desarrollo Rural. 1995 - 2009. *Anuario estadístico del sector agropecuario*. Medellín: Gobernación de Antioquia, , <http://www.antioquia.gov.co/antioquia-v1/organismos/agricultura/anuario%20en%20cd%202008/index.htm> (accessed September 2010).
- Suárez, Gonzalo, Jimmy Melo, and Sandra Ibarra. 2005. La definición del desempeño. una tarea inconclusa. In *La academia y el sector rural*. Vol. 4, 135. Bogotá: Universidad Nacional de Colombia.
- Toledo, Victor M. 2005. La memoria tradicional: La importancia agroecológica de los saberes locales. *LEISA Revista De Agroecología* 20 (4) (April 2005): 16, [http://latinoamerica.leisa.info/index.php?url=article-details.tpl&\[id\]=73510](http://latinoamerica.leisa.info/index.php?url=article-details.tpl&[id]=73510) (accessed October 2010).
- Vallejo, César. 2010. El congreso cafetero: ¿regreso a viejos esquemas? . *Razón Pública* (January 2010), http://www.razonpublica.com/index.php?option=com_content&task=view&id=755&Itemid=160 (accessed September 2010).

Appendix A

Encuesta para el estudio comparativo de los sistemas agroecológico y convencional para el cultivo del Café en Caramanta

Objetivo: Recoger información acerca de los caficultores en Caramanta y el sistema productivo que utilizan. La información será empleada para la elaboración de una tesis de maestría en Desarrollo Económico en Dalhousie University, Halifax, Canadá. La información recolectada es de carácter general y no se podrá deducir de ella información individual. El uso de la información será exclusivamente para el desarrollo de la tesis. El objetivo de la tesis es comparar el sistema agroecológico y el sistema convencional para el cultivo del café en el municipio de Caramanta.

Responsable: Andrea Contreras Araque, estudiante de maestría Dalhousie University. Tel. 902-403-0238
Correo electrónico: an458059@dal.ca

1. Se considera usted un caficultor: convencional _____ ó agroecológico _____
2. ¿Cuántas hectáreas dedica al cultivo del café? _____
3. ¿Aproximadamente cuánto produce al año? _____
4. ¿Cuáles son los principales problemas asociados a su cultivo de café?

5. ¿Cómo da solución a estos problemas o que alternativas usa para mejorar esa situación?

6. ¿Recibe apoyo institucional? Si _____ No _____
Alcaldía _____ ONG _____ Especifique _____
Federación de Cafeteros _____ Otro _____ Especifique _____
7. ¿Qué tipo de ayuda recibe?

8. ¿Es el café su principal fuente de ingreso? Si _____ No _____
9. Si no es el café su principal fuente de ingreso entonces ¿cuáles son sus otras fuentes de ingreso?

Muchas Gracias!!!

Survey for the Comparative Study of Agroecological and Conventional Systems for the Cultivation of Coffee in Caramanta

Objective: Gathering information about coffee growers in Caramanta and the productive system used. The information will be used for the preparation of a master's thesis in development economics at Dalhousie University, Halifax, Canada. The information collected is of a general nature and individual information may not be deducted from it. The use of the information will be exclusively for the development of the thesis. The thesis aims to compare the agroecological and conventional system for the cultivation of coffee in the municipality of Caramanta.

Responsible: Andrea Contreras Araque, graduate student at Dalhousie University. Tel. 902-403-0238 E-mail: an458059@dal.ca

1. You consider yourself a conventional _____ or an agroecological _____ coffee grower
2. How many hectares are dedicated to the cultivation of coffee?

3. Approximately, how much coffee do you produce per year? _____
4. What are the main problems linked to coffee crops?

5. How do you give solution to these problems or what alternatives do you use to improve this situation?

6. Do you benefit from institutional support? Yes _____ No _____
Mayor's Office _____ NGO _____ Especify _____
FNCC _____ Other _____
Especify _____
7. What type of support do you receive?

8. Is coffee your main source of income? Yes _____ No _____
9. What are you other sources of income?

Thanks!!!