

**Document of
The World Bank**

**COLOMBIA
COFFEE SECTOR STUDY**

2002

**ESW prepared by Daniele Giovannucci
for Dept. of Environmentally and Socially Sustainable Development
Colombia, Mexico and Venezuela Country Management Unit
Latin America and Caribbean Regional Office**

Acknowledgment

This document has been prepared by a diverse team of consultants under the leadership of The World Bank. Daniele Giovannucci coordinated the study and served as author and editor. The other principal authors and contributors were José Leibovich, Diego Pizano, Gonzalo Paredes, Santiago Montenegro, Hector Arévalo and Panos Varangis. The World Bank and the authors would like to especially acknowledge a group of professionals working with the National Federation of Coffee Growers, made up of Ana María Barrera, Gustavo Esguerra, Julián García, Andrea Ospina y Clara Cecilia Vergara, and under the coordination of Diego Pizano who also provided information and valuable background sections. Thanks also is due to Nestor Osorio, Juan Jose Echavarría and Bryan Lewin for their comments and contribution.

A great debt of thanks is due to The National Federation of Coffee Growers, particularly Jorge. Cardenas, Luis Fernando Samper and the management team for generously sharing their excellent research and especially for their laudable willingness to openly discuss their strengths and weaknesses during a difficult period of transition.

Thank you to the distinguished members of the Comisión de Ajuste de la Institucionalidad Cafetera and their team for their frank discussion on this complex theme.

Finally, in the World Bank Adolfo Brizzi, Matthew McMahon and Panos Varangis managed the study and contributed useful insights along with Carlos Felipe Jaramillo, and Elsie Garfield. Mark Cackler helped to initiate and support the sector studies. The country management team provided invaluable support led by Olivier Lafourcade, Alberto Chueca Mora, Marcelo Giugale, and an excellent team in the Bogotá office.

The findings, interpretations, and conclusions of the study are those of the individual contributors and do not necessarily reflect those of the World Bank, Colombian government, or the National Federation of Coffee Growers.

Table of Contents

ACRONYMS	4
EXECUTIVE SUMMARY	5
1. INTRODUCTION	11
Historical Perspectives	12
Coffee Cultivation, Harvesting and Processing in Colombia.....	13
Global Context and Trends	14
Support and Stabilization Schemes.....	14
Global Production and Demand Trends.....	15
Industry Concentration.....	18
Macro Trends in Established Consumer Markets	18
Differentiated Markets	20
2. COFFEE'S ECONOMIC IMPACT.....	21
3. SOCIAL IMPACTS OF COFFEE.....	23
4. PRODUCTION ISSUES	26
Planting materials.....	28
Fertilizers	28
Productivity.....	28
Production quality	31
5. PRODUCTION SYSTEMS COSTS	31
The more viable production schemes.....	36
6. POST HARVEST PROCESSES	38
Post-harvesting infrastructure and its impact on quality	38
Ecological management of byproduct and waste	39
7. MARKETING	40
Internal Market Channels	40
Costs of marketing	41
Pricing efficiencies.....	44
Farmers % of FOB market price.....	44
Quality controls	44
Size and realistic growth of potential domestic market	45
The International Marketing Chain	46
Promotional Program	47
Capturing added value in the commercialization chain	49
Differentiated Markets	50
Colombia's Efforts to Develop Differentiated Coffees	51
Options to Capture Value.....	53
8. THE INSTITUTIONS AND THEIR ROLES	54
Research and development	59
National Sectoral Leadership	60

Local and Regional Institutions.....	61
9. FINANCING AND CREDIT: THE UNSOLVED CRISIS	62
10. RISK MANAGEMENT AND SAFETY NETS	64
11. COFFEE POLICIES	70
Exchange Rate.....	70
Stabilization policies	70
Taxes	73
Subsidies.....	74
- FUTURE OPTIONS.....	75
12. INTEGRATION WITH THE PROCESS OF RURAL DEVELOPMENT	76
13. MANAGING TRANSITIONS: OPTIONS FOR DIVERSIFICATION	77
The Government's Role in Diversification	79
Past Experiences in Diversification.....	81
Diversification's Profile for the Future	82
REFERENCES	84
ANNEX 1. COLOMBIA'S COFFEE SUB-SECTOR PUBLIC SUPPORTS.....	88
ANNEX II. NATURE AND CHARACTERISTICS OF DIFFERENTIATED COFFEE MARKETS.....	89

Currency Equivalents

US\$1 = 2,300 Pesos Colombianos (2001)

Weights And Measures

1 hectare (ha) = 10,000 m² = 2.47 acres

1 quintal (qq) = 100 pounds = 46 kg

1 metric ton (ton) = 2,205 pounds

1 bag of coffee = 60 kg = 132.3 lbs

Acronyms

ACPC	Association of Coffee Producing Countries
ALMACAFE	Almacenes Generales de Depósito de Café S.A.(warehousing)
CABI	Commonwealth Agriculture Bureau International
CAIC	Comisión de Ajuste de la Institucionalidad Cafetera
CENICAFE	Colombian Coffee Investigation (Research) Center
CIAT	Centro Internacional de Agricultura Tropical
CORDICAFE	Corporación para la Diversificación Cafetera
CRECE	Centro Regional de Estudios Cafeteros y Empresariales
DANE	Departamento Nacional de Estadísticas (Statistics Department)
DCC	Departmental Coffee Committees
DNP	Departamento Nacional de Planeación (Planning Department)
FAO	Food and Agriculture Organization of the United Nations
GIO	Geographic Indications of Origin
GMO	Genetically Modified Organism
HACCP	Hazards Analysis at Critical Control Points
ICA	International Coffee Agreement
ISO	International Standards Organization
MCC	Municipal Coffee Committees
MRL	Maximum Residue Levels
FNC	National Coffee Fund
NFCG	National Federation of Coffee Growers
NYBOT	New York Board of Trade
RMD	Risk Management Division of the NFCG
SCAA	Specialty Coffee Association of America
SMEs	Small and Medium Enterprises
SPS/TBT	Sanitary and Phytosanitary/Technical Barriers to Trade
WTO	World Trade Organization

Executive Summary

Colombia is the world's third-largest producer of coffee and by far the largest single producer of washed arabica coffee. Since serious commercial production began there in the 1870s it has slowly developed a sterling reputation for consistency and good business practices. Coffee has long been identified with Colombia. Indeed, coffee has for many decades shaped Colombia's fortunes. Its value at one point reached 80% of Colombia's total export value. It was instrumental in fostering much of the country's industrial development and many of its important industries today were funded by coffee earnings.

Today coffee plays a much smaller economic role but its social role has hardly diminished. Coffee has privately funded many of the public development projects in the coffee growing regions. It is a primary source of income for nearly a half-million rural families. It is also a source of pride and independence. Its non-perishability and cash value make it the most important crop in the highland areas. In some of these regions with proximity to areas of illicit crop harvesting, the labor force that is normally well-employed in coffee production has been attracted to this illicit alternative now that coffee prices and farm employment are at the lowest levels in many decades. In 2001 the real value of the coffee harvest was only 40% of its average throughout the 1990s.

Coffee's importance, especially among the rural population, has made the current price crisis particularly difficult for some of the poorer segments of Colombian society. There is urgent concern that a prolonged crisis could seriously destabilize a number of rural areas.

In many rural areas, even for the potential producers of higher-value sustainable or differentiated coffees¹, only 40% have ready access to proper post-harvest processing facilities. Colombia has pioneered a number of useful processes and methodologies including some that are very environmentally friendly. It has been difficult, and more so during these times of crisis, to help provide this infrastructure or even disseminate this information. Colombia's productivity has improved nearly 100% over the last 30 years but remained fairly constant, on average, during much of the last decade. The late 1990s showed a worrying decline in this productivity that has been turned around in the first two years of this decade.

Colombia has a sophisticated internal marketing system that operates through several distinct channels and affords a grower considerable opportunities to complete a satisfactory transaction. In many cases, though not always, he is not at the mercy of one buyer.

The evidence clearly indicates that marketing costs, as well as margins, vary significantly from region to region and the farmer's price appears to depend somewhat on the presence of coops in his particular market to provide a competitive price.

¹ Sustainable coffees include organic, fair trade, eco- friendly. Differentiated coffees encapsulated in these as well as specialty, gourmet, and appellation (Geographic Indications of Origin). See Annex II for complete description.

The NFCG holds, as a primary responsibility the transference of a fair market price to coffee growers and guaranteeing the purchase of all coffees offered so long as they comply with the pre-determined quality standards. A common market practice by other purchasing agents and exporters is to use the NFCG public price, which is announced daily, as a benchmark for calculating their own prices. Therefore, under liberal market conditions, this mechanism helps coffee growers negotiate a transparent price.

Farmers typically receive around 70-75% of the FOB price, when selling their coffee through the coop system. This percentage may vary significantly depending on the exporter and whether intermediaries are used. This is one of the higher rates in the world.

The market has constantly paid a significant premium for the quality and consistency of Colombia's coffee. Export cargos are fully sight and taste sampled thereby completing a series of quality checks that occur throughout the supply chain. The national government has delegated to the NFCG the determination of standards and consequently it has the power to stop any shipment.

For the intermediaries, cooperatives, processors, and exporters who take title to this coffee, their situation has changed somewhat since the National Coffee Fund (FNC) stopped its price stabilization in 2001 and the NFCG had to alter the nature of its presence in the marketplace in response to a significant reduction in its operating funds. As a result volatility in the internal market has increased to the same level as world markets. This has increased the risk and concomitantly the need for risk management instruments. The sector is well aware of the risks of its trade and of the instruments available to mitigate it. Only small and medium farmers are left without meaningful access to risk management instruments although in 1999 the NFCG launched a Risk Management Department that could eventually help to provide such services to the entire farming community. One useful model for this is the International Task Force on Price Risk Management headquartered in the World Bank.

Increasing internal consumption, as Brazil did to become the world's No. 2 consumer, is one of the options that can contribute to reducing the long-term impact of the coffee crisis. Unfortunately Colombia's internal consumption has been declining. A number of factors have contributed to this. Reduced consumer purchasing power that averaged 22% during the last decade and changing breakfast habits are at the top of the list. Another problem may have been the 19 years of subsidies for internal production that induced a strong negative response in terms of both price and consumption when they were summarily withdrawn. Given the downturn in other beverages as well, it may take more than promotional campaigns to foster consumption growth.

Colombia's coffee growers have invested a half billion dollars on their promotional strategy over the last 40 years. Their brand development and unified marketing are a positive byproduct of a unified coffee industry and set them apart from all other producing countries. Not only has this exposure improved the country's overall image but its trademarks and brands are also internationally recognized as assets worth hundreds of millions of dollars.

Most analysts agree that these marketing approaches pioneered by the NFCG have been unparalleled in the coffee world. However, there is concern that it may have somewhat lost touch with the market's direction in recent years and failed to generate strategic commercialization initiatives to address the current crisis. With only two exceptions, it has not created opportunities for its brand to capture more existing value in downstream activities especially after its heavy investment in its consumer branding.

While Colombian producers have consistently obtained a respectable premium over most other mild coffee producers, prices for all producers have declined considerably. Conversely, coffee firms in consuming nations have captured increasingly larger downstream margins. Increased production driving down prices is certainly a major factor but so is the increasing concentration and growing bargaining power of international coffee traders and roasters. At least one study shows that while long-term green coffee producer prices have declined the retail price paid by consumers has increased considerably. In changing world markets, Colombia must not only address competition from other producers but also from other actors along the supply chain. Managing its alliances and flexing of its market power will be critical for its future competitiveness.

One reason for Colombia's market success in the past was its development of what could almost be called a consistently high mono-quality. Its ability to provide high volumes at a steady quality level gave it a unique advantage and a seemingly unassailable place in most large commercial roasters' blends. In recent years however other countries, producing not the same but nevertheless adequate-quality coffees at lower prices, have taken some of its market share in commercial blends. At the higher end of the market those producers who focused more on differentiated offerings like Guatemala are currently earning higher premiums and are establishing a first mover advantage in some of those markets.

Colombia has not been standing still, it has moved to improve its presence in supermarkets and also invested in differentiated coffees. However its commitment to the latter has been relatively small until recently. These incipient markets for differentiated coffees are of course still relatively little but they are developing at a fast-pace and production for these could soon reach about 15% of Colombia's total. They also earn considerably higher premiums, about 14% on average last year. More importantly, it appears evident that Colombia's competitive advantage is not to produce the lowest cost coffees for commercial blends. Its factors of production lend themselves more to high-quality and differentiated offerings.

A number of these differentiated coffees have considerable benefits or externalities quite apart from their market value. They can contribute to promoting more sustainable production practices, to empowering farmers and their cooperatives, and to help foster a more rational use of natural resources. They can also be a natural way to manage risk since they often do not require considerable upfront investments or the expenditure of hard earned cash on imported agrochemicals. Because of these factors and the market factors differentiated coffees can be one of the important tools in Colombia's market strategy requiring that bottlenecks be resolved in its production and post-harvest processes.

Throughout the decades when Colombia set the benchmark for quality and pioneered new practices throughout the supply chain perhaps its most notable achievement is a sectoral

institution that has no parallel in the world: The National Federation of Coffee Growers (NFCG). For more than 70 years it has helped coordinate national policy, improved cultivation practices through its internationally renowned research institute, instituted and maintained the most rigorous set of quality controls in the world, and built up perhaps the only commonly known national coffee brand as exemplified by Juan Valdez and the "100% Colombian" logo. An even more remarkable achievement is its willingness and ability to invest heavily for the public benefit in coffee growing areas. It has built hundreds of clinics and hospitals, thousands of schools, and funded numerous road and infrastructure projects. Its efforts have been instrumental in achieving the superior levels of human development that currently exist in the coffee growing areas. Yet all is not perfect.

A recent in-depth evaluation recognized its many merits and yet also offered some comments about the need to restructure and reinvent the coffee institutions (FNC and NFCG) into more lean and agile agencies with improved accountability and transparency. This will be critical in order for them to effectively fulfill their three essential functions. Their distinct multiple functions as market regulators, a market participant, and a market promoter cannot be credibly mixed together as they have been without potentially incurring a number of problems that range from inappropriate political influence to some inefficiency.

The National Coffee Fund (FNC) is Colombia's primary policy instrument and through its National Coffee Committee determines policy. Originally it was created to stabilize the flows of coffees in the early quota days (Convenio Interamericano de Cuotas 1940) and then evolved to serve as a price stabilization mechanism for more than 20 years. It succeeded in significantly reducing the internal price volatility and helping to manage the supply throughout most of its existence. By the 1990s it experienced a precipitous decline and the recent crisis forced it to end its stabilization functions, cut back much of its financing, and seek credit support.

The NFCG executes the policy determined by the National Coffee Committee but due to the current inability of either the farmers or the FNC to make substantial contributions, it has been forced to slash its expenditures. It has been able to maintain its most basic functions that include:

- guaranteed purchase of the coffee produced (provided basic quality is met)
- the provision of critical services such as research and storage facilities
- quality control
- sales and marketing overseas

The coffee 'contribución' or tax has been practically suspended due to low prices² and there is some debate about whether it should be reinstated and at what level. This debate is critical since this income has traditionally funded coffee policy. A recent high-level report took up the debate and noted that on occasion the government through the National Coffee committee pursued its own macroeconomic policy goals and political priorities rather than the direct benefit of the coffee growers. Through the FNC, coffee growers, rather than pocketing the money, appear to have contributed an estimated \$535 million to the national government in the last 17 years. No other agricultural sector so heavily finances the government to help conduct its policy.

² currently assessed at less than one cent US per pound

Most taxation recommendations agree on a maximum level that is considerably lower than in previous years thereby intending to transfer a larger portion of the world price directly to growers. Most importantly, there is a growing awareness of the need to foster transparency around how the tax is determined and how it is spent.

One of the less visible and yet most important aspects of the work funded by the FNC is the world-class research and development institution: CENICAFE. While this institution has made some notable achievements, there is growing opinion that it could accomplish even more with its accumulated inventory of basic research and production technology that could greatly benefit the coffee sector on the whole, especially smallholders while its focus may have been more on the high-tech and larger scale developments. It too is in need of more appropriate evaluation and feedback mechanisms so that it can be more responsive to its constituents.

For many decades the issue of credit has been a priority for producers. Despite the overall historic success of coffee, private financial institutions are not disposed to extending credit in rural areas and to small producers. This situation is common to rural areas in all developing countries. Even some of the specialized institutions set up to specifically serve the agrarian sector have been unable to fulfill the demand. Informal credits helps to bridge some of the gap but only at usurious rates of interest. Initiatives like the Productive Alliances Project, are providing hopeful indications of alternative solutions at least in some areas. With the dramatic downturn in prices many coffee producers have had to restructure their credit more than once.

At present there are two main subsidies that affect coffee production: A) a subsidy for the renovation of coffee plantations and B) a price subsidy that guarantees a price support for coffee production. There is concern about the targeting of the former since it is available to coffee growers despite their size or means. Various experiences with price support schemes provide us with the following lessons: a) maintaining higher prices in the face of long-term declining markets is almost impossible and b) if support is deemed absolutely necessary, the better approach is to support the income and/or the diversification of coffee farmers instead of supporting prices.

A recent report that studied the costs of different types of production on different farm sizes and in different regions concluded that low-cost production schemes are the ones more likely to remain feasible in Colombia and that the Southern Region has the brightest future in coffee production. Conversely, the Eastern Region, with the highest costs in all considered technologies, could therefore be the most likely to diversify out of coffee if low prices continue.

Modern technologies with higher production yields per area, also incur higher input costs, especially labor costs, which at the prevailing price levels are not offset by greater volumes of production. Since less productive traditional technologies have lower cost structures, especially labor costs, they seem to be better placed to survive under present circumstances. The studies only looked at production costs and of course these are only one factor in determining profitability. The generalized assessments are only for the purpose of understanding the overall production potential in each region.

In coffee growing areas there has been an increasing level of on-farm diversification over time that is mainly the result of farmers' initiatives. This implies a certain disposition to diversify. Much of the diversification away from coffee has not included smallholders and occurred primarily on larger landholdings suggesting difficulties for smallholders to diversify. Recent

studies have noted that favoring extensive, large scale agriculture "...continues the disturbing trend of the past fifty years where the use of land and labor in Colombia has been driven in highly inefficient directions by a variety of agriculture sector, land and rural financial policies and sector programs..."³. There has been little diversification into cash crops that could help balance the dependence on coffee. Although many crops, which are exclusively associated with food security and smallholder agriculture, have remained stable.

Diversification is not easy, especially from a traditional and popular non-perishable cash crop like coffee. A diversification program for coffee growing areas must start by addressing particular farmer objectives defined according to local necessities (i.e. income diversification, improved food safety, promote planting of other more profitable coffee varieties, or any combination). It must also help farmers to assess specific issues related to appropriate technology, risks, necessary skills, financing, information, and markets. Non-farm rural enterprise⁴ presents another option.

The government has a key role to play in any diversification initiatives. It can provide vital resources like technical assistance, credit, market research, and organizational skills. Colombia has had considerable experience with diversification and many lessons can be learned from this. One of the studies reviewing these experiences notes that the most successful diversification enterprises were those initiated by the farmers themselves, as opposed to institutional programs.

Because of its organization and experience Colombia's coffee sector will survive the current crisis relying on its unique ability to adapt and to innovate as it has before. A vision of a sustainable coffee sector in Colombia will involve an expanded approach to quality, increased focus on emerging environmental issues, more attention given to smallholders, and adding value by improving processes and capturing more of the downstream margins in the supply chain. To do so its institutions will evolve toward more agile and more transparent forms. They will know that the answer is not just about quality or about specialty markets or about productivity or about better promotional campaigns. It is about managing, like a business, all of its considerable factors of competitiveness and doing so in an equitable manner that benefits all of the sector.

³ Drawing from Heath, John and Hans Binswanger. Natural Resource Degradation effects of poverty and population growth are largely policy-induced: the case of Colombia.. Environment and Development Economics. World Bank. Conveyed in personal communication from M. McMahon.

⁴ Many useful services from machine repair to accounting to equipment rental can provide valuable services that support farm communities and make them more productive while reducing the inherent risk associated with farming.

1. Introduction

Colombia is one of the world's most important producers of coffee. The current crisis dramatically affects not only its own situation but also that of the world's coffee markets. The World Bank has undertaken this study in response to the government's and its own concern, expressed at the highest levels. It intends to examine the current situation throughout the sector and its impact at the social as well as the economic and environmental levels. This study is complemented by a separate report that assesses the larger global situation in terms of the dominant supplying countries and the evolution of demand.

This introduction outlines the global situation in brief and sets the context with a synopsis of Colombia's coffee history and its unique "*caficultura*". Chapters 2 and 3 assess the impact of the current coffee situation in both economic and social terms. Chapters 4 and 5 address the current situation and the relevant issues in its production and post-harvest processes. Chapter 6 assesses the marketing chain from the grower to the exporter and considers some of the competitive options that are available. It also considers Colombia's domestic and international promotions. Chapter 7 takes a look at the relevant institutions at the local, regional, and national levels; it describes their roles and evolution and discusses issues relevant to their future. Chapters 8 and 9 review the situation of credit and the risk management options that are currently available. The policies currently selected by the government to resolve this crisis are considered in chapter 10 and compared to the lessons learned in other countries. The current production systems and their regional differences are considered in chapter 11 and some conclusions drawn about the profitability of diverse production systems in different regions. Chapter 12 discusses some of the options for the sector to capture more value for its products. The last chapter reviews some of the rationale and the required parameters for any successful diversification and reflects on the inherent challenges that a diversification efforts would present.



Historical Perspectives

Jesuit priests are credited with having first introduced coffee into Colombia around 1723. Colombia's long history as a commercial coffee producer and exporter only began in the 1870s. At the end of the nineteenth century, production was primarily concentrated in the department of North Santander (in eastern Colombia). At the beginning of the twentieth century, its growth spread with the consolidation of settlements in Antioquia and coffee became the main crop in these new areas. By around 1910 its production and exports topped one million pounds and coffee accounted for about half of Colombia's export revenue. Caldas and Antioquia soon consolidated their current position as the country's main coffee growing departments. Coffee activity now occurs in 604 of the nation's 1,022 municipalities.

For decades it helped to provide the foreign income that fueled the growth of many other productive and industrial sectors. By 1920 Colombia was exporting 2.3 million bags valued at US\$106 million. By then, coffee was so vital to the economy that it represented approximately 65% of Colombia's total exports. Later in the decade this percentage climbed even higher to 80%. Its considerable capacity to generate employment was perhaps more valuable than its foreign exchange earnings. This employment and subsequent cash flow fueled a new level of purchasing power among many segments of the population. This new demand therefore became an essential element in the growth of banks, railways, and many firms in the industrial sector.

One hundred and twenty years later, Colombia has benefited from its coffee history and it has diversified and considerably strengthened its economic position. While coffee may not be as economically important to Colombia as it was in the past, it is still vital. Not only is it important for Colombia but for the world as well. Colombia's share of the international market went from 10.6 percent during the first half of the 1970s, to 15.2 percent in the first half of the 1990s, falling to 11 percent during the last two years (Clavijo, Jaramillo, and Leibovich, 1994; Pizano, 2001). Colombia is now the world's third-largest coffee exporter with 10 million bags in 2001⁵ representing foreign exchange earnings of US\$ 893 million.

Colombia's population estimate for 2001 is just over 40 million people. Its per capita GDP purchasing power parity is approximately \$6,200 yet more than 50% of its population is below the poverty line. Colombia's coffee story is more than economics, it is inextricably entwined with its culture, its development, and even its identity. Colombia has 805,000 hectares of coffee fields, with farms averaging 1.4 hectares per farmer. Yet, Colombia does not have a homogenous coffee sector, it is comprised of considerable diversity. It is this very complexity that provides many of the seeds of its future competitive success. This very diversity is a valuable asset as it strives to revitalize its coffee culture and continues its valuable contributions to nearly three million people that depend on coffee.

⁵ 9,974,000 60 kg bags

Coffee Cultivation, Harvesting and Processing in Colombia⁶

Colombian coffee is grown in mountainous regions at altitudes ranging from 1,000 to 2,100 meters, where the average temperature is between 18 and 22 degrees Celsius and rainfall is frequent. Given the wide climatic and geographical differences, Colombia cannot be said to have a specific coffee harvesting period, as is the case in many other coffee-producing countries. Depending on the region, coffee is harvested throughout the year, with a principal crop between October and December, and a secondary crop between April and May. There are, however, some regions in which the principal crop is harvested between April and May and the secondary crop between October and December, thus allowing a more even flow of fresh coffee. In order to guarantee good quality. The secondary crop is popularly known as the "Traviesa" or "Mitaca". A tree can be visited up to eight occasions until all the ripe cherries have been picked at their optimal stage of development.

In order to produce a final bag of green coffee (60 kg) the grower must harvest and process approximately 450 kilos of fresh coffee cherries. After harvesting, the coffee undergoes a preparation process which transforms the ripe cherries into parchment coffee ready for marketing and industrial preparation. The coffee is prepared by the wet processing method. This means that farms usually have access to preparation facilities that usually include the following:

Pulping: this process separates the pulp from the ripe cherries and is done by pulping machines on the day the cherries are picked and thus differentiates them from "naturals".

Fermentation: this process removes the remaining mucilaginous pulp covering the bean. The coffee beans are placed in fermentation tanks and left to ferment for between 12 and 24 hours depending on the local temperature. This operation may also be carried out using special equipment; when mucilage-removing equipment is used, the process is carried out in a single continuous operation.

Washing: after fermentation, the beans are washed in canals of running water in order to remove the fermented mucilage.

Drying: the coffee is dried in the sun; on very large farms, mechanical driers are used. The dried coffee is known as parchment coffee and is often sold in this form.

Once the coffee has been prepared by the grower, he sells his crop, which is then milled and marketed. After milling and before final bagging, the coffee is classified by color, size and shape; specialized equipment and female workers are employed for this purpose. Quality control is then carried out by NFCG whose experts take samples of the various types of coffee. These are roasted, ground and brewed, and coffee tasters classify the coffee in accordance with its aroma, body (concentration), acidity and uniform quality characteristics.

⁶ Partly adapted from ICO Colombia profile

Global Context and Trends

The coffee industry is undergoing some fundamental changes in the nature of the business, and it is important to recognize the extent and consequences of the emerging paradigm shift.⁷ These include:

- Dramatic increases in tree plantings that now practically ensure structural long-term overproduction potential, particularly in unwashed arabicas and robusta.
- The quality of these less-expensive coffees is steadily improving.
- The ability and willingness to substitute traditional coffee origins in most industrial blends.
- Increased concentration, especially among roasters and traders, which reduces market options.
- Market concentration, inadequate information, and speculation will likely fuel continued high volatility in the absence of an international agreement.
- Lower green beans prices no longer necessarily correlate with lower roaster and retail prices that would usually stimulate increased consumption.

Support and Stabilization Schemes

In the past there have been several international attempts to stabilize world coffee prices through the International Coffee Agreement (ICA). The ICA succeeded in keeping coffee prices higher and stable, although price stabilization benefited mostly exporting countries with established higher quotas, and penalized new entrants (Akiyama and Varangis 1990). Since 1989, the ICA has not included economic clauses that would regulate the coffee market, resulting in greater world price volatility and overall lower prices during the 1990s. From 1993 until its recent demise, a producers' organization, the Association of Coffee Producing Countries, tried but failed to regulate the world coffee supply through a retention scheme.

In addition to international efforts, several coffee-producing countries (including Cameroon, Colombia, Cote d'Ivoire, and Papua New Guinea) have used price stabilization funds. Almost all of these stabilization funds ran into serious financial difficulties. In most cases, the funds eventually went bankrupt. While it lasted, Columbia's was certainly the most successful, but its net worth has dramatically decreased and it can no longer perform its stabilization function.

During the 1990s, several coffee-producing countries (Costa Rica, El Salvador, Guatemala) tried to support domestic prices.⁸ Mexico and Nicaragua used funds differently to support the income

⁷ A considerably more in-depth treatment of this topic occurs in the companion document, "Global Supply and Demand: New Paradigms in the Coffee Market."

of small coffee producers by giving a fixed payment per hectare with caps on maximum farm size rather than production quantity. More recently, Guatemala is using a fund to promote diversification, agroprocessing, marketing, and debt restructuring. The various experiences with price support schemes and stabilization funds provide us with the following lessons:

- Most price stabilization schemes aim to support domestic prices when world prices decline. The objective of higher prices rather than stable prices is almost impossible to maintain (Wright and Williams 1990; Deaton 1992; McIntire and Varangis 1999).
- If support is deemed absolutely necessary, the better approach is to support the income and/or the diversification of coffee farmers instead of supporting prices. Mexico and Nicaragua, for example, have provided a support linked to amount of hectares under coffee so that there is less distortionary incentive to increase production in order to receive more.
- Any price support scheme that maintains a higher price level removes the realistic incentives for necessary adjustments in terms of diversification and reducing production in marginal areas.

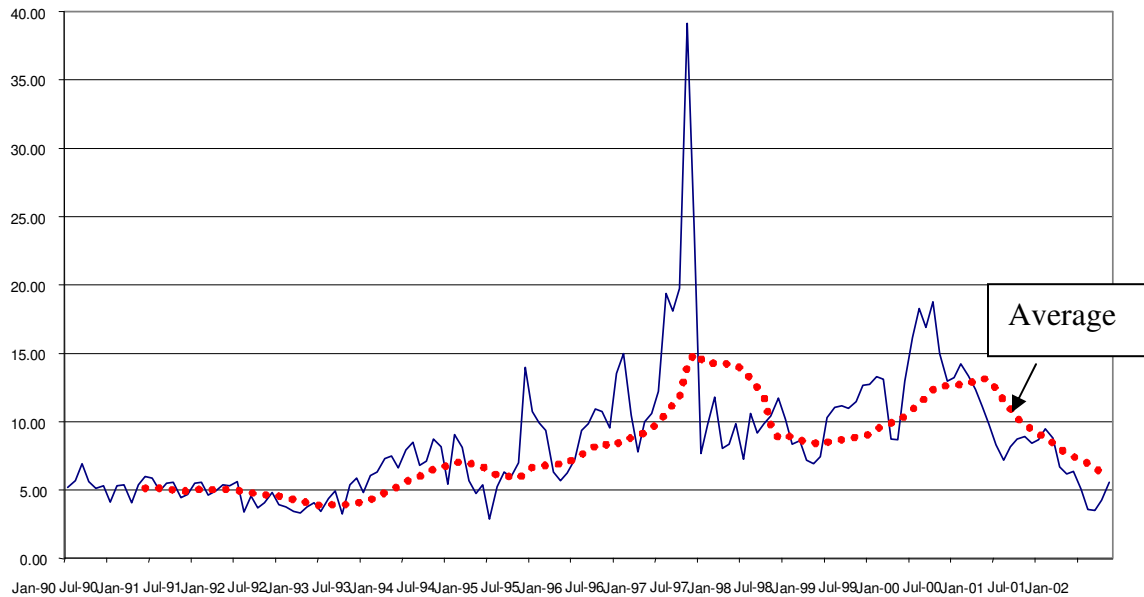
Global Production and Demand Trends

In the last 20 years, world production has increased from 86 million bags to about 122 million bags today (USDA 2002), giving rise to surpluses on the order of 10 million bags in 2002, and more in 2003. For the near to mid-term, most predict that price recovery will be slow. Production may drop below demand by 2003/04, but significant accumulated stocks will remain a negative influence on prices.

When looking for an answer to coffee's dismal prices, most fingers point first to Vietnam, whose dramatic 1,400 percent robusta production increase in a decade (1990–2000) appears to have surprised the industry. While Vietnam's meteoric rise to number 2 producer, with 14.7 million bags in the 2000/2001 year, makes it the most visible contributor to overproduction, it is by no means the only one (see Figure 1). Brazil, for example, has added more to the global supply over the last five years than Vietnam has (Giovannucci 2002), and its production increase in this year alone (about 13 million bags) exceeds Vietnam's total output for this year. Also of note is that since the 1997 low point for consumer stocks, the stocks of arabicas (particularly Other Milds) have been growing faster than robustas. Consumer stocks of Colombian coffee fell sharply in 1995 to about one month's supply, where they have remained since. This, along with reduced Colombian stocks, may have contributed to raised differentials in relation to the Other Milds, as can be seen in Figure A1. However, recently that premium has been lost as the prices of other good-quality washed arabicas have risen as production of washed arabicas has fallen.

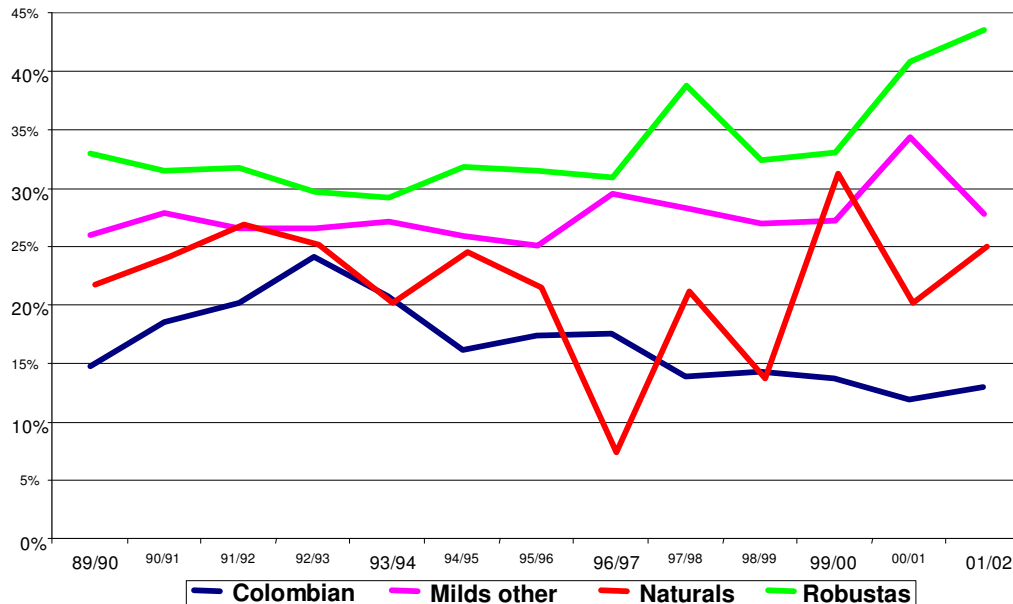
⁸ Costa Rica's National Fund for Coffee Stabilization (FONECAFE) paid farmers \$6.38 per quintal during 1998–99 and 1999–2000, and \$18.76 per quintal during 2000–01, with the obligation of a repayment by farmers if world prices increase above \$92 per quintal. Similar efforts by El Salvador and Guatemala were all funded through the issuance of bonds.

Figure A1. Differentials—Colombia and Other Milds



Source: Lewin, World Bank

Brazil produced a bumper crop in 1998/99 of about 38 million bags from about 3.4 billion trees. Recent estimates suggest there are approximately 4.6 billion trees now in production, with about 1.3 billion more still developing. Of these 6 billion trees, many new ones went into northern frost-free zones and the highly productive areas of the Cerrado (Giovannucci 2002). Brazilian cooperatives in Sol do Minas are now introducing washed coffees, and perceive a production capability of about 2 million bags. The quality of the unwashed and semiwashed coffees has improved, and is now able to take a much larger part of commercial blends than before, displacing other washed coffees and even robustas according to relative prices (see Figure A2).

Figure A2.**Importer Demand for Exportable Production**

Source: World Bank ITF

Until the arrival of the 2002/03 Brazil crop, the most notable increase has been in robustas, where Brazil, India, and Vietnam, particularly, have seen substantial increases. Exportable robusta production now accounts for over 40 percent of import demand, which historically has not been much more than 33 percent.

This increased capacity has strong implications for future supply. Historians would note that this boom–bust cycle has plagued the industry for more than a century, including Colombia’s own, although more modest, 50-percent-plus production increases in the 1970s. Indeed, it is not just coffee that suffers this cycle; it is almost an a priori definition of commodities. The availability of these coffees and flexible usage patterns have come following a period in which high volatility and high prices forced coffee roasters in importing countries to make a number of changes in their business, and this is another key part of the paradigm shift.

Through the use of new technologies, industry has been able to lower its necessary working stock levels and has also been able to introduce more flexibility into its blending—by, for example, steaming robustas and some low-grade arabicas to reduce their harsh taste. Analysis of imports from Colombia and other washed arabica producers into countries such as Germany suggests that roasters are finding replacements for the average quality output from Colombia. It is not clear whether they would switch back if Colombian output rebounded above recent levels. This implies that Colombia must be savvy about its strategies in these markets.

Conceptually, the overall market can be perceived as a quality pyramid with inexpensive soluble coffee at the bottom, standard commercial blends in the middle, and progressing toward high-end differentiated coffee at the top. While the top and bottom are growing at a healthy pace, the vast middle section has been stagnant. Colombia's general position is primarily in this middle tier, and therefore finding sustainable future growth presents a challenge.

Industry Concentration

The fact that technology has led roasters to become more flexible in their approach to blending has increased the requirements of agile just-in-time logistical capabilities of suppliers, which has consequently favored the largest trading companies, leading to concentration of the supply chain in fewer major traders. The shortening of the trade chain and the loss of some market players has also led to a concentration of the marketing margins in the hands of the more powerful players. Today, retailers, with their ability to manage consumer information and prices, are in the driver's seat. Their ability to develop private labels and otherwise bypass the traditional trading channels is fast emerging as a critical issue. Only the more organized producer groups will have the capacity to deal with them directly.

Globally, the food industry is consolidating at every level. While this trend increases efficiency, it also reduces the leverage of producers and makes it increasingly difficult for smallholders and small and medium-size enterprises to participate in the markets. As the dominant players downstream in the supply chain capture more value and enforce exclusivity on their suppliers in order to maximize profits, increase entry barriers, and mitigate risk (that is, food safety, market risk, financial), they are fast emerging as the dominant form of competition. To be competitive today, producers need to address supply-chain development at every level so that they add value to agricultural products as they require individual participants to coordinate their activities in a continuous improvement process.

Table 1A. The Increasing Concentration of the International Coffee Business
<ul style="list-style-type: none">• 5 traders dominate 48%• 5 importers manage 46%• 5 roasters control 55%
<i>Source: Pizano, 2001</i>

A declining share of earnings is further aggravating the dire situation of Colombia and other producer countries. In the 1980s consumers spent approximately \$30 billion per year on coffee, and producing countries earned approximately \$9 billion, or nearly 30 percent of this. Today consumers spend an average of \$55 billion a year on coffee, and producing countries earn approximately \$6 billion, or 11 percent of this (Gemeil 2001).

Macro Trends in Established Consumer Markets

If, indeed, consolidation is now a dominant competitive paradigm, other options are fast emerging for smaller producers and enterprises to exploit channels that large supply chains and mega-enterprises find less cost-effective than mass production. One such channel is

differentiation, where producers can develop a competitive advantage that is not easily affected by generic competitive factors (price, distribution, and so forth) that dominant actors often command.

Quality and value will continue their emergence as competitive standards with continued, although more modest, prosperity in the European Union (EU) and in the United States, where postwar baby boomers will drive growing demand for “highly targeted and specialized products” (*Food Distribution Magazine* 2001), and mass market brands are particularly vulnerable to intense competition. This is supported by industry research pointing out that individualized tastes of the percentage of the U.S. population consuming gourmet coffee⁹ has grown considerably in recent years, from 31 percent to 46 percent.

According to the U.S. National Coffee Association, coffee-drinking habits are elastic among consumers under age 35. After age 35, the proportion of people who convert from non-coffee drinkers to regular coffee drinkers is low, suggesting that in relatively mature markets like the United States, the coffee industry will have to capture more young people as they enter adulthood.

Another area of strong growth is the market for soluble coffee. This is growing at the high end for more mature markets and among the most basic quality levels in the emerging markets. Some of the high-end markets such as the United Kingdom use a considerable proportion of arabica beans in their soluble offerings.

Increasing food safety concerns (mycotoxins, bovine spongiform encephalopathy [BSE, or “mad cow” disease], hoof and mouth disease, genetically modified organisms) stimulate strong market responses. This implies a fundamental shift in the role of grades and standards from reducing transaction costs to serving as strategic tools for market penetration, system coordination, quality and safety assurance, and product niche definition. These are being driven by three sets of changes in the global trade regime:

1. A new **regulatory** environment, with the World Trade Organization and its Sanitary and Phytosanitary/Technical Barriers to Trade agreements, regional trade agreements, and even governmental requirements (EU standards for ochratoxin, maximum residue levels, and so forth) make entry into fast-globalizing markets more demanding than ever for products across the agricultural spectrum.
2. A new **business** environment features increased legal liability and requires “due diligence,” such as the international standards organization and hazards analysis at critical control points, that are some of the institutional methods of standardizing. Supply chain concentration also demands ever-increasing levels of standards and performance measured by global rather than local performance standards. Individual firms and chains (supermarket, fast food, and so forth) are increasingly creating their own standards that

⁹ Defined as “premium whole bean or ground varieties” in the 2001 “National Coffee Drinking Trends Study,” The National Coffee Association, New York.

they impose on the agrifood chains that they dominate in developing countries (the Ethical Trade Initiative and Euro Retailer Produce Working Group).

3. There is a new **consumer** environment that features increased food safety concerns, a focus on health and diet, and increasingly globalized consumer tastes. In more developed markets, experts predict that social and environmental concerns, especially ethical ones will continue to emerge as not only competitive differentiators but as basic rules of the game and prerequisites for participation.

Coffee sales are affected by these concerns even if coffee is not directly affected. There is great interest in the economic, social, and environmental benefits of differentiated and specialty coffees and their volumes have grown dramatically in recent years. The markets for these products should be approached with caution since they are still limited and can involve considerable farmer effort to adapt to their more stringent requirements. However, their development often provides additional benefits or externalities beyond competitive advantage; that is, improved natural resource management, community or organizational development, and increased rural self-sufficiency.

Differentiated Markets

Some leading buyers are either implementing or considering sustainable sourcing guidelines that differentiate them from other sources of supply, and may push the demand for coffees like organics that fit these criteria. The differentiated markets, led by continued strong growth in the United States that is now spilling over into Europe and parts of Asia, offer excellent circumscribed opportunities for higher-quality producers, although volumes in most of these markets are still very modest.

The differentiated markets could be one valuable tool with which to earn higher revenues and a superior market reputation. In the case of Colombia, these can serve as valuable levers to help it benefit from its quality-oriented competitive advantage. These markets can and often do overlap each other. They include:

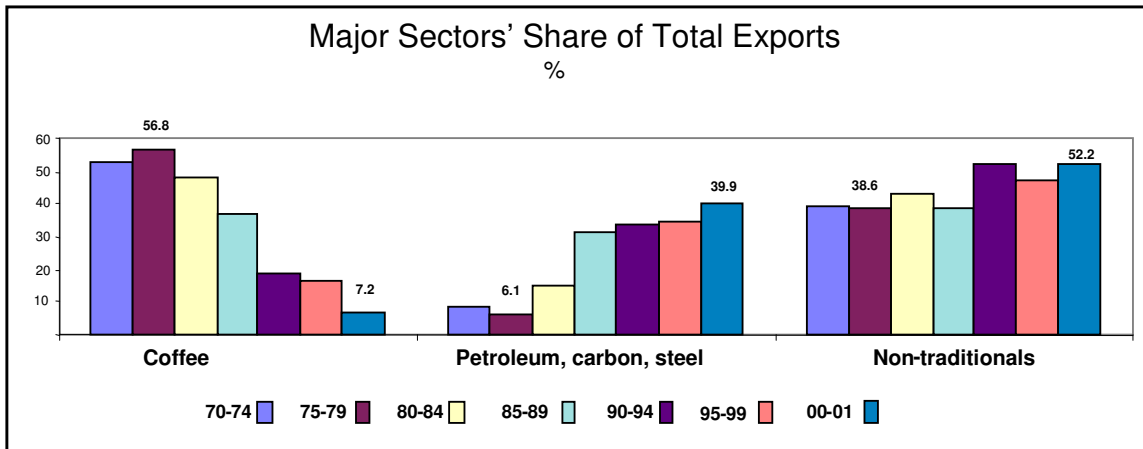
- Geographic Indications of Origin
- Gourmet and specialty
- Organic
- Fair trade
- Ecofriendly or shade grown.

A discussion of their primary characteristics and their current trends is presented in Annex II. The reasons for their importance as part of a strategy include: a) Consistent high growth rates; b) Price premiums; c) They can address global social and environmental concerns; d) The need to access market niches that are competitively different; and e) The opportunity to provide positive externalities in the field.

2. Coffee's Economic Impact

For decades, coffee was the single most important sector of the Colombian economy. Through the mid 1980s, coffee policy was synonymous with macroeconomic policy. Since then, coffee's relative macroeconomic importance began to decline. This tendency was the result of a deliberate diversification policy of sources of income and foreign exchange. (See Chart 1).

Chart 1



Thanks to its diversification the coffee sector crisis has not produced a serious balance of payments problem and neither has it become a generalized crisis of the whole economy. In effect, as it is shown in Charts 2 and 3 participation of the coffee sector has decreased from around 30% of agricultural GDP in the middle of the 1970s, to less than 24% at the end of the decade, and from nearly 3% of total GDP to less than 2% during that same period.

Chart 2

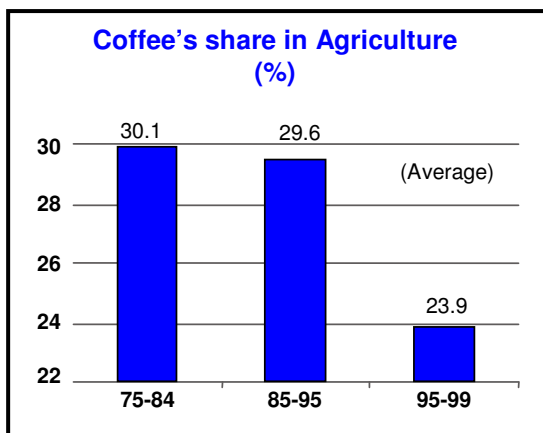
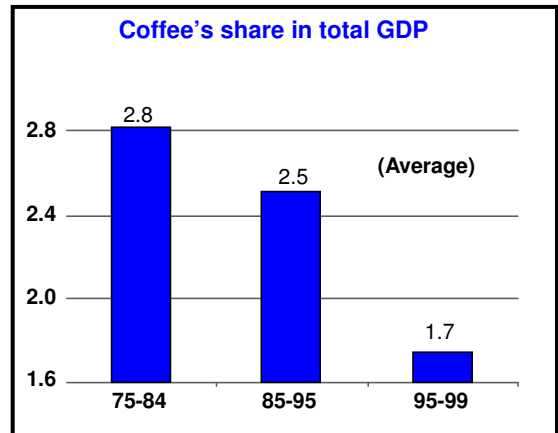
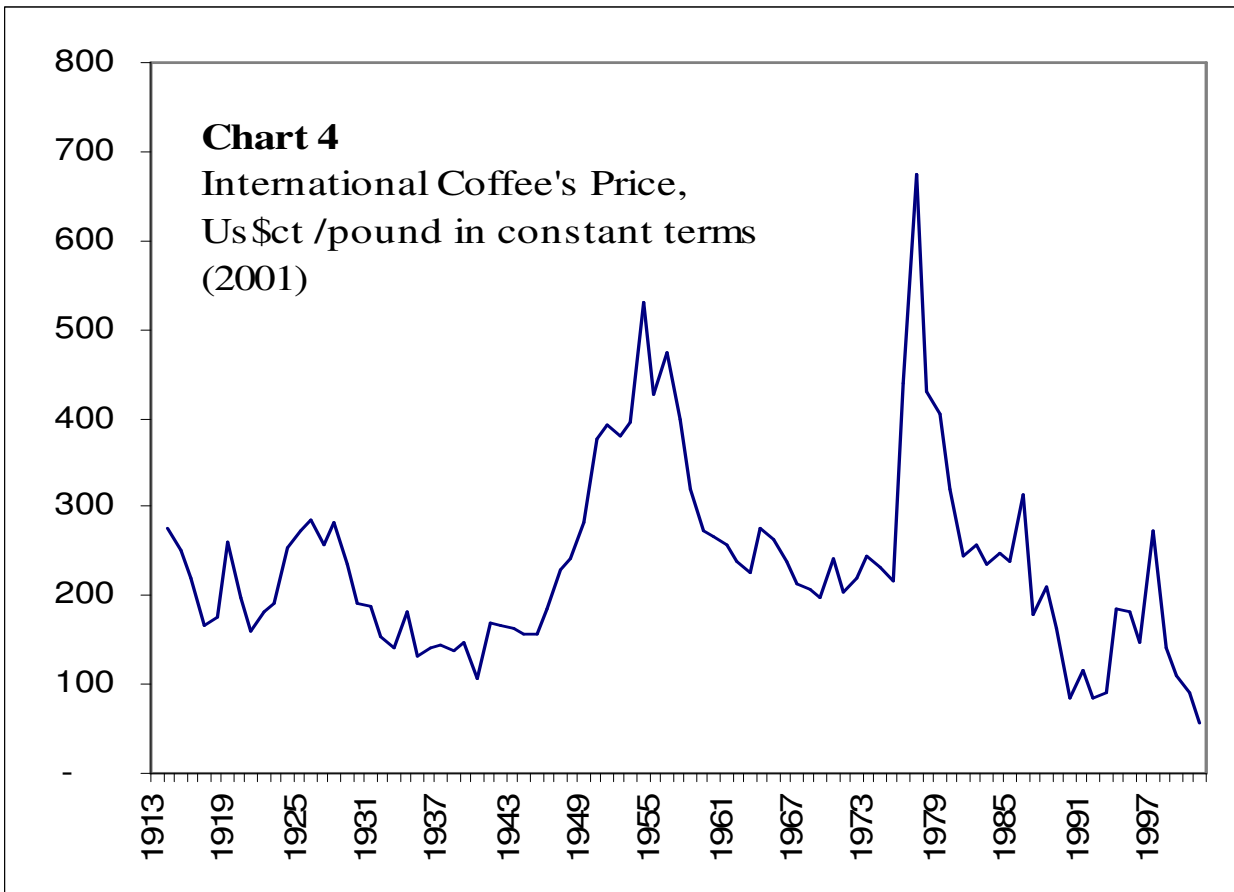


Chart 3



While it is evident that the behavior of world coffee prices is volatile, and that during the twentieth century coffee prices reached extraordinarily high peaks (1954 and 1977), in real terms its long term trend has been a decreasing one. In effect the price of mild coffees is the lowest in history. Producers who can deal profitably with situations such as these are those who can offset low prices with greater productivity, lower costs of production or product differentiation strategies, in order to sell their output at greater prices than the average



Source: ICO and author calculations

3. Social Impacts of Coffee

Coffee today does not only derive its importance from being one of Colombia's main exports, but also because fully 18% of Colombia's rural households depend on it directly for their income. According to the Encuesta Nacional Cafetera in 1997, Colombia's coffee zone had 566,230 coffee farms with a total of 423,368 households living on them.

The coffee sector has made considerable public investments in its growing regions. It has in many cases made an impact superior to even that of the national government. Levels of illiteracy are notably lower than the national average. On average, 80% of households have local primary schools. With government support The NFCG has constructed more than 6000 schools that can teach approximately 360,000 children.

In coffee growing regions there is greater availability of a clean drinking water, utilities and basic sanitation. Even health services are better and have greater coverage than in non-coffee producing areas. The NFCG, investing resources provided by the coffee tax built 180 hospitals and over 200 health clinics in the coffee growing regions. Unfortunately many of these advances are unlikely to be continued given the difficult financial condition of the NFCG

It is of little consolation to know that the impacts of today's historic price lows are not confined to the coffee regions. Many commodities like coffee have experienced dramatic lows in recent years and coffee price volatility has quadrupled in the last decade (less so domestically due to price supports). Low prices and volatility impact the poorest segments of society most of all. In Colombia, the inability or failure to diversify and/or add value has left commodity production as the primary source of income for many thousands of poor families.

A coffee farmer audit finished in 2001 (Common Fund for Commodities et al., 2001) noted in order of importance the main problems mentioned by small coffee farmers:

1. low coffee prices
2. lack of rural credit
3. commercialization problems
4. lack of community organization
5. low coffee productivity

The inability to reinvest in their farms or their productivity leads to many well-documented problems including: rural migration, reduced education and healthcare, and even unsustainable natural resource use with corresponding environmental problems. How best to manage the negative consequences of fewer coffee commodity market options and volatile coffee markets are key issues for Colombian farmers and the allied coffee industry. This need is particularly pointed in light of emerging information that global shifts in production and consumption patterns indicate that the depression of prices could be considerably longer than in the past.

As profitability in coffee production decreases, field cultivation practices which demand labor and fertilizers decrease as well, affecting not only physical coffee quality but also its organoleptic quality. This decrease in quality is manifesting itself already and in the future its effect will only compound given the cyclical and slow developing nature of coffee trees. Consequently, these current responses in the field to low prices will affect coffee quality several years into the future and continue to jeopardize farm incomes even when the crisis passes.

Coffee Prices Volatility Index (Standard Deviation %)		
Year	World Price	Producer Price
1995	35.52	9.69
1996	39.75	19.76
1997	65.12	40.13
1998	36.56	25.40
1999	55.52	26.83
2000	47.86	32.07

Table 1. Source: NCFG

The volatility of domestic producer prices, in turn, has increased significantly, as measured by volatility index, which rose from 10% in 1995, to 32% in 2000, approaching the world price volatility index. See Table 1. In 2001 the abandonment of stabilization policy floated the producer price to fully reflect world market prices.

The coffee production area has reduced 17% or ca. 170,000 Ha. In the last decade according to FAO data. According to the

Encuesta Nacional Cafetera (1997)¹⁰, since 1970 there has been an increase in the number of coffee farms from 297,000 to 668,000, and a reduction in the coffee growing areas from 1.05 million to 870,000 hectares in 1997. This indicates a reduction in the average size of farms whose primary crop is coffee from 14.8 to 5 hectares and in the average size of actual coffee plots from 3.5 to 1.4 hectares¹¹.

Distribution of Coffee Plots by size				
Size of Coffee plots (ha)	Number of Farms	Total Coffee Area (ha.)	Green Coffee Production (60 kg. Bags)	%
0 – 1	364.300	167.000	1.811.880	15,10%
>1 – 5	172.200	373.000	4.857.552	40,48%
> 5 -10	20.100	138.000	2.011.632	16,76%
>10 – 20	6.900	93.500	1.561.140	13,01%
> 20	2.800	98.000	1.757.700	14,65%
Total	566.300	869.500	11.999.904	100%

Table 2. Source: Encuesta Nacional Cafetera 1997

There is no clear evidence yet that the coffee crisis has induced a widescale process of illicit crop substitution in the coffee regions although several news stories and the National Federation of

¹⁰ this is the most current set of this data on the sector.

¹¹ The current Agricultural Production Unit (APU) definition differs from the one used in 1970 of the farm; the argument does not refer to APUs but to farms alone.

Coffee Growers (NFCG) reports indicate that it is happening sporadically and the possibility is ominous¹². But there are indications that the shortage of employment opportunities and rural diversification options combine with the insecurity in many areas to form a self-feeding circle that serves to limit productive long-term investment and results in greater dependence on illicit crops and low-labor activities like livestock. Cocaine has helped produce a ‘Dutch disease’ effect, contributing to the appreciation of the peso and to higher real wages in the countryside.

In some of the coffee departments such as Huila, Tolima, Cauca and Nariño, with proximity to areas of illicit crop harvesting, this has created a source of attraction for the labor force employed in coffee production. Hence, illicit crops have pushed up labor scarcity and costs. To date, the main effect of illicit crops is not coffee crop substitution but a distortion of the labor markets. In the case of the smaller producer, whose source of labor is his own family, and whose family income is generated not only by agricultural produce but also by wages earned outside the farm, he is likely to benefit from this phenomenon. For the larger coffee producer, highly dependent on wage labor this situation will increase his costs of production. Given the few cash crop alternatives in remote rural areas, coffee is one of the few viable legal options for income but cannot compete with higher value illicit crops.

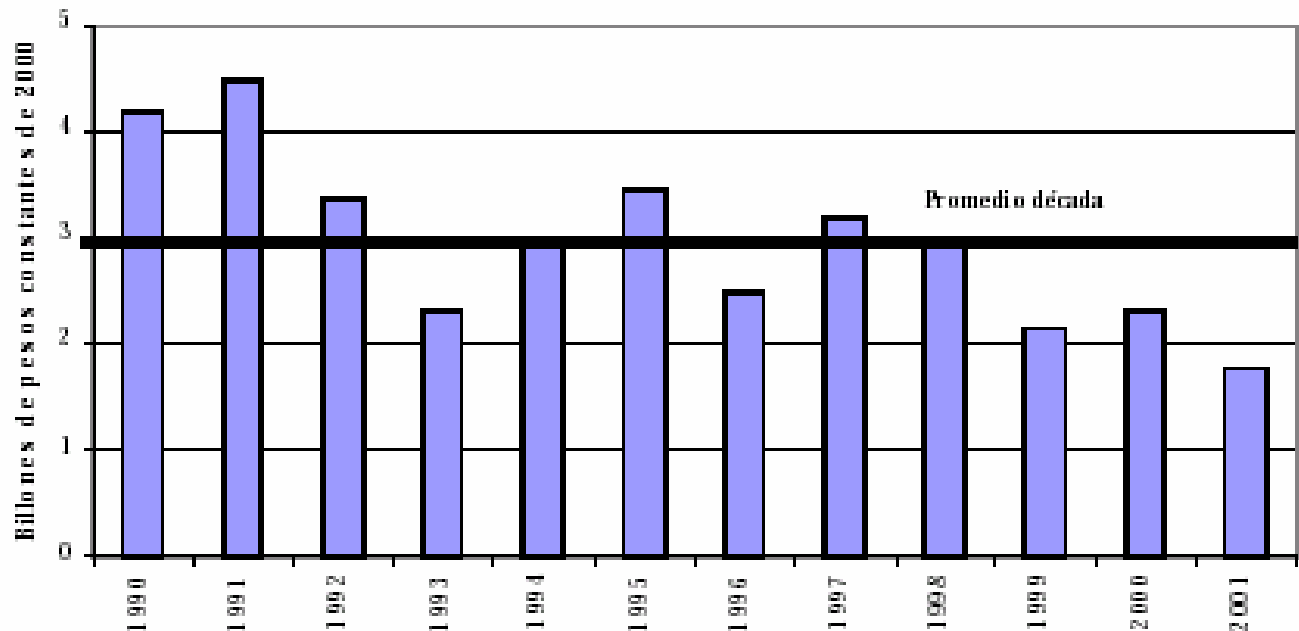
Today, 18% of Colombia’s rural households depend directly on coffee production for income, be it through coffee harvesting or through wage labor. Many of these employment opportunities come from the larger coffee producers. Labor employed in the coffee sector during the last decade has represented on average about 34% of total agricultural employment¹³. While at the beginning of the 1990s coffee was responsible for about 750 thousand full jobs in coffee growing areas (Junguito & Pizano,1991), in 2000 coffee was responsible for 515 thousand full time jobs (Office of Advisors in Coffee Matters, 2000). The NCFG estimates that approximately 100,000 more people may lose jobs in the sector¹⁴.

Even if a few small producers have been able to partially compensate their lower income with some illicit resources, the overall effect of lower international prices on the sector’s income has been dramatic. As measured by the real value of the coffee crop, the coffee sector’s income has fallen 50% during the last decade. In 2001 alone income was fully 40% less than the decade average. As a result, coffee producers’ welfare has been severely affected, and there has been a high human cost. Due to the reduced profitability of the coffee sector, it is estimated that the number of households in coffee growing areas living under the poverty line rose from 54.2% to 61% between 1997 and 2000 (DANE, 2001).

¹² For example, El Tiempo Feb 17, 2002 and Dec 5, 2001 had a front-page bulletin about the crisis in coffee zone and accompanying ills of drugs, kidnapping--both precipitors and consequences of a bad situation.

¹³ excluding animal husbandry

¹⁴ Personal communication Diego Pizano (March 5, 2002 email commentary)

Chart 4A. Real Value of Harvest (in billions of pesos constant at year 2000 value)

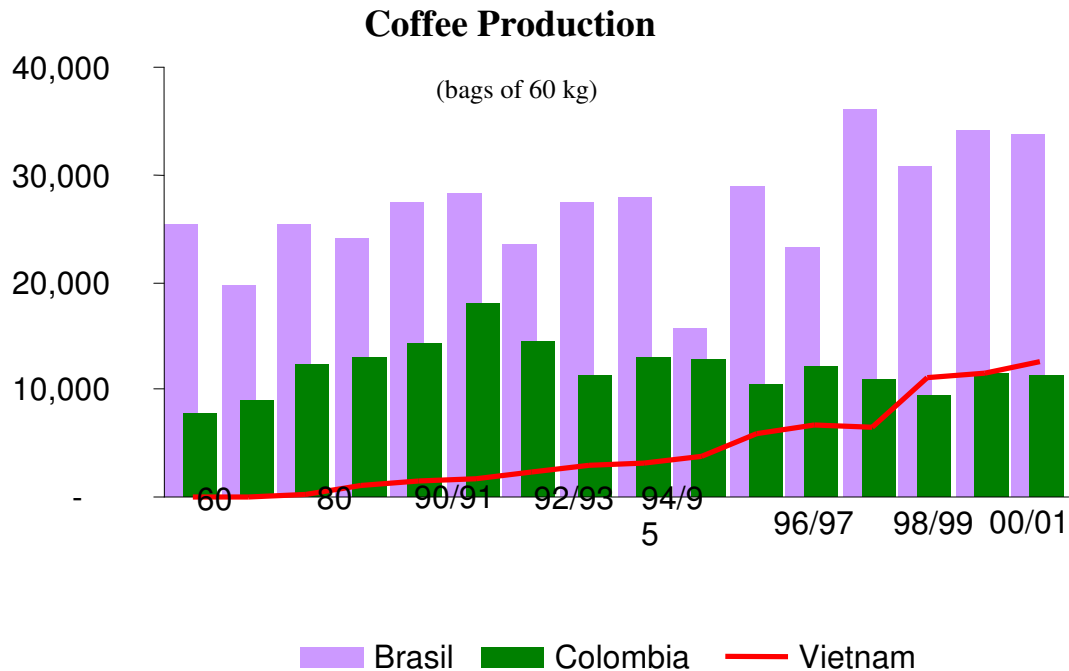
Source: NFCG from CAIC report

4. Production Issues

For many decades Colombia's production policy emphasized relatively high volumes of production (the world's No. 2 producer until recently) and above-average quality levels. Planted areas increased almost 40% during the 1960s reaching an all time peak of almost 1.1 million hectares in 1970 as measured by that year's coffee census. From there onwards there has been a steady decline in planted areas, so that the area estimated by the NFCG for 2002 is 805,000 hectares.

Colombia's coffee production has reduced slightly in recent years although it has remained more or less constant for the last 30 years while Brazil and Vietnam; the two other major world producers have increased their production (See Chart 5).

Chart 5. Comparative Coffee Production



The modernization program of coffee areas launched by the NFCG and the favorable conditions of the world coffee markets help to push physical productivity from an average of 7 bags per hectare a year in 1970 to 12.9 in 1982. However, from the early 1980s it has remained more or less constant in values averaging between 12 and 14 coffee bags per hectare with some notable rises and falls including a brief peak of more than 18 bags per hectare in 1993. In the 1990s productivity quickly fell from the 1993 high back to below 13 bags per hectare by the late 1990s. While this may indicate that Colombia's coffee sector is near to its limit in terms of increases in physical productivity, the NFCG estimates that productivity, in the mid to long-term, has a potential of reaching 20 bags per hectare. The NFCG renovation program has been largely responsible for recent increases in these averages since the year 2000. In 2002 productivity levels reached 13.7 bags per hectare and 2003 projections are for 14 bags with modest and steady increases over the next few years due primarily to the amount of new trees coming into full production.

Although the great 1970's effort of modernization significantly improved coffee production and productivity, the overall structure of coffee production has otherwise remained mostly unchanged except for a clear reduction in planted areas. Labor productivity, for example has improved only marginally in the last 30 years. While productivity is certainly important from an economic standpoint, other production factors such as differentiation/specialization or high-quality orientation may be equally valid and worthy of consideration. Colombian coffee growers face a complex scenario nationally and internationally, which nonetheless offers them several profitable alternatives. Some growers will need to depart somewhat from the commodity production mentality and start evaluating, with the available institutional support, the alternatives open to them according to their particular interests and possibilities. However, to aid them in

taking appropriate decisions, certain institutional aspects of production need to be addressed and made available to the coffee producing sector.

Planting materials

Disease resistant and more productive coffee varieties are necessary to ensure the long-term competitiveness of Colombia's farmers. Cenicafe should be encouraged to continue research on commercial varieties that are capable of reducing cultivation labor and protecting the environment from unnecessary use of agrochemicals. The NFCG has a program designed to renovate 70,000 hectares a year with young trees. Approximately 35% of these hectares under renovation are planted with new trees resistant to coffee leaf rust: 'Variedad Colombia'. However, questions have been raised about the quality control system to ensure their resistant advantages and these must be appropriately addressed by CENICAFE and the NFCG's own quality assurance systems.

Fertilizers

For many years the NFCG subsidized the use of fertilizers, perhaps unsustainably since the real beneficiaries in some cases may have been crops other than coffee. A promising soil conservation program that appeared effective and had long-term sustainability was unfortunately stopped because of the FNC's financial crisis.

Integrated soil conservation can significantly reduce the need for all externally purchased inputs and therefore reduce farmers' exposure to financial risk incurred when borrowing or spending cash for synthetic agrochemicals. Coffee soil in Colombia, with its high volcanic ash content, is very fragile and easily erodible. A comprehensive soil conservation program should include policies aimed at reducing trees' age, stimulating use of shade trees and wind barriers (where appropriate), introducing leguminous soil coverings, planting of associated crops, and avoiding the indiscriminate use of insecticides and fungicides. To preserve and increase the soil's natural microorganisms, some synthetic fertilizers should be substituted with organic material such as compost, coffee pulp, and other green fertilizers. These simple organically-oriented methods, familiar to CENICAFE, have not been emphasized as much as the more technologically oriented approaches.

Productivity

Since the 1970s Colombia implemented an active coffee production policy whose main objective was to increase physical productivity in coffee plantations; this was to be brought about primarily by promoting highly productive coffee varieties with corresponding agrochemical inputs and increasing plantation densities. This proved to be a rather successful policy while the economic clauses (quotas) of the International Coffee Agreement lasted and Colombia's rural labor market had an oversupply of workers on offer. However, these and other variables have changed to warrant a new consideration of this strategy.

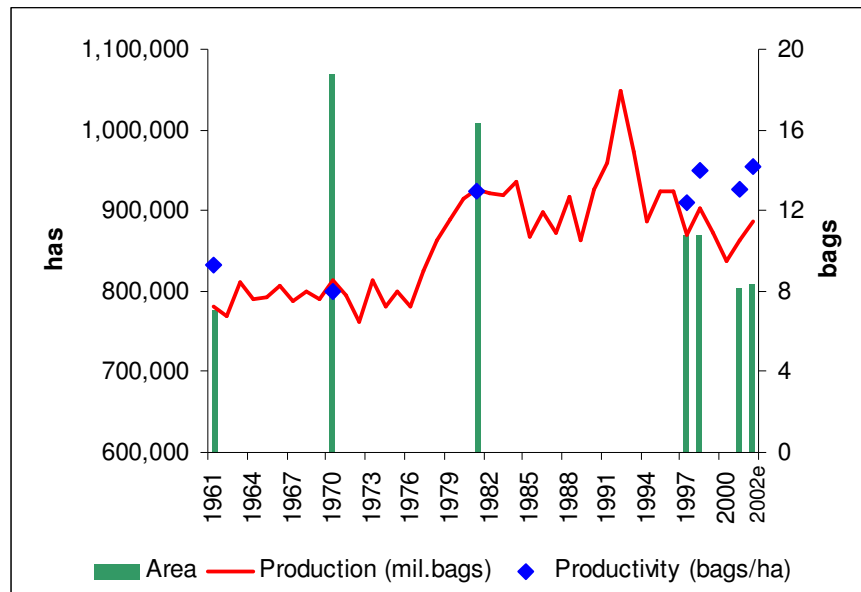
Colombia's cost of rural labor has increased over time, in part due to the ongoing conflict in rural areas causing a shortage of labor supply. This of course affects coffee's costs of production, especially those of the highly productive farms which are intensive in wage labor. Labor costs

amount to between 70% and 80% of final production costs. The rise in labor costs has not been offset by a corresponding increase in labor productivity; hence coffee's higher physical productivities may be producing an adverse effect in its cost structure especially under the present scenario of relatively low world coffee prices.

Decades of promoting higher physical productivities may also have helped to produce environmental stress, in terms of deforestation, water contamination, loss of the soil fertility and reduction of biodiversity. These negative externalities today may be obstacles for the development of certain differentiated and specialty coffee such as organic, and therefore a consistent policy to develop more environmentally-friendly types of coffee will be needed to address them.

As shown in Chart 6 Colombia's coffee production exhibited a constant annual production of around 8.7 million coffee bags up until the mid 70s, when it started increasing, most certainly as an effect of the process of modernization, until it reached an average annual level of 11.5 million coffee bags for the remaining part of the century. The observed peak in 1992 of 18 million coffee bags was due to a combination of favorable conditions which have not repeated themselves since then. The average annual production over the last five years has been approximately 10.8 million bags in part as an effect of the recent efforts to recover productivity through the renovation program.

Chart 6



Source: NFCG

In 1998 the NFCG launched a renovation program targeted to lower the overall average age of planted trees to between 5 and 5.5 years of age. This was to be brought about by subsidizing the yearly renovation of approximately 70,000 hectares, starting in 1998. Coffee plots under renovation have no meaningful production in the first two years, begin producing on the third and reach a peak on the fifth. The following data in Table 3 reflects the renovation program's results.

NFCG:Renovation Program of Coffee Trees 1998-2002	
Years	Renovated Hectares
1998	62.842
1999	73.217
2000	60.400
2001	43.000
2002 (*)	60.000
(*) Estimated	
Table 3 Source: NFCG	

One of the critical variables limiting increases in physical productivity is the cost of labor because of the fact that increases in productivity demand similar increases in labor that therefore offset income gains due to greater production. Small coffee growers (plots under 5 hectares) disguise this fact by employing family labor. As will be discussed more extensively in section 11 (Viable Coffee Production Systems in a Low Price Scenario), employment of non-wage labor by these farmers results in that their actual production costs are under 0.45 US\$/pound¹⁵. Medium and large producers (coffee plots bigger than 5 hectares) have production costs of over US\$0.53/pound¹⁶ and the difference in costs are primarily explained by the fact that 95% of their labor needs medium and large producers are met by wage labor.

The NFCG's own assessments indicate that there is room to increase the output per ha. about 100% in some areas and that a 20% further reduction in average costs of production is possible. Increasing output productivity is certainly welcome but the methods must be well considered given the potential negative environmental externalities of intensified production and that an increase in physical productivity is not necessarily followed by an increase in profitability.

With world prices for Colombian coffee at below 0.70 US\$/pound, profitability in coffee production for medium and big producers is too low to be attractive for investment. Therefore any proposed intensification of production can have the following shortcomings which have to be addressed in order to design a consistent and realistic production policy:

- Produces an increase on demand for manual labor thereby potentially narrowing profitability even further for the medium and large coffee producers.
- Care for coffee quality –one of Colombia's comparative advantage– requires a careful process of selection before and during harvesting which depends on manual labor and adequate infrastructure, and is difficult to control whenever harvests come in great volumes and in short periods of time, as is the case in intensive plantations.

¹⁵ Equivalent to Col\$1.760 per kg

¹⁶ Equivalent to Col\$2.080 per kg

- Colombia's topography does not permit mechanization alternatives.
- Usually small producers are averse to radical technological changes in the production chain¹⁷ in cases where there are viable alternatives or additional investments are required.
- Coffee profits are sensitive to variations in international coffee prices. In view of this, intensification is a high-risk decision where losses can be of considerable proportions.
- Production in intensively cultivated farms is cyclic and regular, but as a monocrop is highly sensitive to climatic and environmental conditions.
- Coffee in Colombia is an exotic crop, as densities increase it is more pest susceptible. Two of coffee's most notable pests, –namely coffee leaf rust which arrived in 1983, and the coffee berry borer which arrived in 1988– in the absence of resistant coffee varieties are more easily controlled under low plant densities.

Production quality

Quality begins in the field with good agronomic practices and requires well-managed harvest and post-harvest processes. Colombia, as a quality leader, has initiated a number of such programs over the years. Now, as its position has eroded, more quality and market-oriented interventions are necessary in order to elevate Colombian coffee's market advantage. This is especially true as most other producers also rush to invest heavily in quality. Among the potential areas of production oriented focus are:

- Improving the age, variety, and quality of the tree stock
- considering the selective development and promotion of high-value heirloom varieties in appropriate smallholder growing areas.
- Offer options for high-value green production technologies i.e. organic and shade-grown
- Introducing more quality promotion techniques i.e. cupping labs in rural areas, quality competitions like Cup of Excellence events
- increased promotion of coffees from specific Geographic Indications of Origin that can promote superior quality

5. Production Systems Costs

Colombia's coffee growing area is located along the Andes mountain range and in the Sierra Nevada's foothills; it is planted between 1000 meters and 2100 meters above sea level. However, the social and economic structures affecting coffee production in the different coffee regions, as well as their variance in environmental conditions (soil quality, water supply and sunlight), have

¹⁷ It should be noted that there is evidence that Colombia's smallholders, perhaps because of 70 years of organized extension services and notable successes, are less resistant to radical change than in many other countries.

resulted in production models with quite different resources. Under present market conditions data from these allows us to arrive at some conclusions as to the future of the regions as coffee producing areas.

In order to examine this regional effect the Center for Regional Studies in Coffee and Managerial Studies (CRECE) conducted a study which classified coffee production models by region and analyzed how they were facing present production conditions in the context of a low cost environment (CRECE, 2001). Even though this resulting regionalization is too aggregated to capture important internal differences it is a reasonable approximation and the only analysis currently available. Their regional classification was as follows: Central-Western Region, comprising the departments of Antioquia, Caldas, Quindío, Risaralda, Tolima and Valle; Eastern Region, comprising the departments of Boyacá, Cundinamarca, Norte de Santander and Santander; Southern Region, comprising the departments of Cauca, Nariño and Huila; and Northern Region, comprising the departments of Cesar, La Guajira and Magdalena. Table 3 shows distribution of coffee planted area and production according to these regional classifications Central Western and Southern regions represent 79% of total planted area and contribute with 88% of production.

Table 11.

Distribution of coffee production and planted area by region		
Region	Planted Area	Coffee Production
Central Western	61%	75%
Southern	18%	13%
Eastern	16%	9%
Northern	5%	3%

Source: CRECE

For the purposes of this analysis regions were characterized mainly according to production technology and farm sizes.

From the point of view of coffee growing technology, production in Colombia can be classified as: 1) modern sun exposed plantations, 2) modern tree shaded plantations and 3) traditional rustic plantations. The term modern sun exposed refers to high density plantations (average densities of 5,100 trees per hectare), with young highly productive trees, whose care practices are labor intensive and require high doses of agrochemical inputs resulting in high cost structures. Modern tree shaded plantations have an average density of 4,300 coffee plants per hectare, and on the whole demand less inputs (labor and agrochemicals) because of their shade and lower plant densities. These are less productive but their production costs are also lower. Finally traditional plantations have average coffee plant densities of 1,800 trees per hectare, are shaded by diverse forest canopies, use minimal inputs, and have the lowest cost structures.

Table 12 shows distribution of planted area according to technology. Around 75% of coffee planted area in both Central Western and Southern regions correspond to modern technologies – sun exposed and tree shaded– while in the Eastern region this percentage is just 50% of total area and in the Northern only 20%. Traditional technologies cover 50% of coffee area in the

Eastern region and 80% in the northern region. Thus technology separates Central-Western and Southern regions from the other two, the first ones having a much more modern outlook while the other two, and especially the Northern region are predominantly traditional.

Table 12.

As shown in Table 13, modern technologies contribute with 81% of total Colombian production,

Distribution of coffee planted areas by region and production technology			
Region	Technology		
	Sun Expo.	Tree Shaded	Traditional
Cent. Western	41,1%	35,6%	23,3%
Southern	35,1%	38,6%	26,3%
Eastern	9,1%	40,9%	50,0%
Northern	3,3%	16,7%	
Total	32,9%	36,1%	31,0%

Source: CRECE

and in Central-Western and Southern regions these technologies respectively produce 85.5% and 81.7% of total regional production. In the Eastern region this percentage is 63%. and in the Northern it is just 28.5%.

Table 13.

Distribution of coffee production by coffee growing technology and region			
Region	Technology		
	Sun Expo.	Tree Shaded	Traditional
Cent. Western	49,8%	35,7%	14,5%
Southern	42,4%	39,3%	18,3%
Eastern	13,0%	50,1%	36,9%
Northern	5,1%	23,4%	71,5%
Total	44,3%	37,1%	18,6%

Source: CRECE

When analyzing costs the size distribution of coffee farms becomes important due primarily to the savings which smaller farms can obtain from non-wage family labor. Table 14 shows distribution of coffee farms according to size and region. Small farms (between 0.1 and 3 hectares) are predominant in the Southern and Central-Western regions representing 62.7% and 54% of all coffee farms respectively. In the Eastern these size farms represent 44.5% and in the Northern just 5.8%. Thus coffee growing areas in Southern and Central-Western regions are

made up of a majority of small farms while the other two and especially in the Northern Region, most coffee farms are large ones.

Table 14.

Percentage of coffee farms by size and region				
Farm size	Regions			
	Cent. Western	Southern	Eastern	Northern
0.1 - 1 ha	25,5%	30,9%	16,8%	1,2%
1 - 3 ha	28,9%	31,7%	27,8%	4,6%
3 - 5 ha	14,0%	13,6%	15,7%	5,6%
5 - 20 ha	24,2%	19,1%	30,8%	33,7%
>20 ha	7,3%	4,7%	9,0%	54,9%

Source: Encuesta Nacional Cafetera 1997

According to CRECE's 2001 report, the highest physical productivity 1,126 kg/ha in the Central Western Region, while the other three regions have average productivities of around 600 kg/ha (Table 15). As the different production technologies have differing productivities in each of the regions, each region's average productivity is the resulting mix between the three technologies in the particular region. It is important to note the productivity differentials between regions for each of the technologies; the Central Western having by far the highest productivity, followed distantly by the other three regions. When comparing technologies in terms of productivity, both modern technologies do not differ much, while the modern sun exposed has a yield almost twice as much as the traditional.

Table 15.

Coffee yields by production technology and region (Kg per hectare)				
Region	Technology			Average
	Sun Expo.	Tree Shaded	Traditional	
Cent. Western	1.311	1.080	654	1.126
Southern	817	669	465	589
Eastern	691	589	361	604
Northern	720	682	405	614
Average	885	755	471	

Source: CRECE

On the other hand, profitability of each of these models depends not only on their physical productivity but also on their production cost structure. The production cost structure being used for this analysis includes all costs except the land's rate of return and financial costs. As is shown in Table 16 production costs per hectare differ widely between technologies and regions;

between technologies the differences are explained mainly because the modern and highly productive ones make intensive use of labor and agrochemical inputs, and between regions because the different environmental conditions demand different quantities of inputs, and the cost of labor varies according to regional markets and the percentage of non wage family labor employed. Costs per hectare vary widely between technologies and regions. The Central-Western's sun production has the highest costs while the Southern region's traditional methods have the lowest. The costs of the former are more than six times greater than the latter's. Within the Central-Western region costs by technology are less diverse than in the other three regions, therefore technology makes less of a difference in terms of costs in the Central-Western region than in the others.

Table 16.

Coffee production costs by technology and region (Col \$ per hectare)			
Region	Technology		
	Sun Expo.	Tree Shaded	Traditional
Cent. Western	2.601.520	2.246.400	1.385.950
Southern	1.438.800	1.150.250	409.200
Eastern	1.769.600	1.271.700	722.500
Northern	1.612.800	1.692.600	486.000
<i>Source: CRECE</i>			

The combination of these two effects –physical productivity and production costs– is illustrated in Table 17. According to this data the Southern Region has the lowest costs, followed in ascending order, cost wise, by the Central Western, the Northern and finally the Eastern Region. When considering technology alone, the less costly structure is the Traditional one, while both Modern –sun exposed and tree shaded– are on average equally more costly.

It follows then, that the Southern Region has the highest profitability, followed in descending order by the Central Western, the Northern, and finally the Eastern regions.

Table 17.

Coffee production costs by technology and region (Col \$ per kg)			
Region	Technology		
	Sun Expo.	Tree Shaded	Traditional
Cent. Western	1.984	2.080	2.120
Southern	1.760	1.720	880
Eastern	2.560	2.160	2.000
Northern	2.240	2.480	1.200

Source: CRECE

Table 18 shows the distribution of costs per kg. of coffee according to technology and farm size, that could imply that the smaller farms are the most profitable ones. However, since the calculations did not take into account their intensive use of non-wage family labor, this calculation does not take into account the opportunity cost, if any, for that labor.

Table 18.

Coffee production costs by technology and farm size (Col \$ per kg)			
Farm size	Technology		
	Sun Expo.	Tree Shaded	Traditional
0.1 -1 h a	1.120	1.240	1.056
1 -3 ha	1.080	1.200	1.040
3 -5 ha	1.720	1.840	1.680
5 -20 ha	2.400	2.560	2.360
>20 ha	2.560	2.640	2.400

Source: CRECE

At the moment world Colombian coffee price is around 0,68 US\$/pound which results in an average internal coffee price of Col\$ 2.472 per kg (this price includes the subsidy of Col\$ 240 per kg being paid to coffee growers so long as the world price translated into Col\$ minus commercialization costs, remains below Col\$ 2.544 per kg). Under these price circumstances modern technologies are profitable in all regions except for the sun exposed in the Eastern region and the tree shaded in the Northern region (Table 9). However, as shown in Table 10, with present price levels, all technologies remain profitable for farm sizes below 5 hectares.

The more viable production schemes

Supposing that in the near and mid-term world coffee prices will remain low, and that public policy towards the sector will not modify the structure of production by interventions or

subsidies, then some conclusions as to possible evolving tendencies of the average structure of the coffee growing sector can be stated, but it is also important to acknowledge that production costs and profitability in the field, while vital, are not the only components of success in international trade. Quality levels, disease resistance, processing/marketing costs, product marketability and other variables can potentially shift conclusions about which region and maybe even which type of production will actually be competitive, especially over the next few years.

1. Low-cost production schemes are very likely to remain feasible in Colombia. This means that the Southern Region, in any of the technological structures analyzed, has a bright future. The Central Western Region has slightly greater costs per kg and will have a positive profitability as long as the coffee price level does not drop further. In future, coffee production in the Northern Region may only be viable under the traditional technology. The Eastern Region has the highest costs in all considered technologies, and therefore could be the one more likely to diversify out due to negative profitability. Of course, these are very generalized and relative assessments for the purpose of understanding the production potential in each region. Furthermore, at a more localized level considerable variations can take place that obviate these assessments. For example, a group of well-run small organic or fair trade farms even in one of the less competitive production areas may still be quite profitable, as would an estate producing gourmet quality.

2. Non-traditional technologies with higher production yields per area, also incur higher input costs, especially labor costs, which in part due to the prevailing price levels are not presently offset by greater volumes of production. Therefore, unless there are significant gains in input savings and in labor productivity, non-traditional technologies seem to be facing a difficult bottleneck cost wise. On the other hand as less productive traditional technologies have lower cost structures, especially labor costs, they seem to be better placed to survive under present circumstances.

3. From the point of view of farm size, the smallest ones (up until 3 hectares) are the ones with higher profitability at present coffee prices; medium farm sizes (3-5 hectares), have positive profitability, although less so, and larger ones (>5 hectares) have negative profitability. This implies that small coffee farms will tend to succeed in coffee production. However, the picture is more complex. The overall profitability of smaller farms is contingent on their use of personal and family labor. This of course reduces the possibility of laboring remuneratively on other farms, off-farm wage labor, or pursuing other cultivation opportunities thereby diminishing other forms of potential income. Valuing this opportunity cost of labor would significantly reduce their real profitability and somewhat increase their level of vulnerability.

At the other end of the scale, farmers with coffee areas in excess of 20 hectares are known to have economies of scale that help them distribute some of the administrative and labor costs. Occasionally farmers of the size may also have readier access to credit lines that enable them to weather difficult periods. These larger farms, because of their needs and typically higher capitalization, often provide valuable labor opportunities in rural areas that help sustain smaller farmers who work away from their own land and wage laborers.

4. Modern coffee production technologies (sun exposed and tree shaded) in larger farms may be less viable, primarily due to their high dependence on labor, a factor whose cost has risen due to

rural-urban migration and by the distorting effect on the labor market produced by illegal crops. The greatest incidence of labor on the cost structure is in harvesting, but labor substitution would create further problems of rural employment. Even if it were possible, substitution with a process of mechanization is limited by the mountainous conditions of the coffee growing area. However, labor productivity could foreseeably be increased somewhat by rationalizing its use throughout the production process and implementing organizational practices that optimize it.

6. Post harvest processes

Post-harvesting infrastructure and its impact on quality

According to the 1997 Encuesta Nacional Cafetera, of the nation's 566,230 coffee farms, 40% (228,116) have the necessary infrastructure to process around 412,000 cubic meters of ripened coffee berries; 41% (234,049) dry coffee using direct sunlight, and only 2% have drying silos. Sun drying makes use of various facilities such as schoolyards, churchyards, patios, roads, etc., not all of them suitable for that purpose. A deficient drying process results in a significant increase of *pasillas* (low quality coffee berries). Most coffee growers select better quality coffees from *pasillas* before selling it, so an increase in *pasillas* at the farm level results in a reduction of the volume of quality coffee being produced but not on a reduction of overall quality; however, what does happen is a fall in individual producers' income due to lower prices paid for *pasillas*.

In general, coffee must reach 12% humidity levels for it to be considered dry; incomplete drying processes with a higher percentage of moisture result in 'wet coffees' which contribute to quality deterioration. Due to deficient drying infrastructure, and because of the increasing risk of coffee being stolen from farmers' premises, in some areas of the country wet coffee sales have increased. At present between 20% and 30% of total coffee being purchased are considered inappropriately 'wet'.

According to Almacafe's¹⁸ records around 8% of the total purchase between 1990-2000, had quality problems; in 2001 this figure reached 522.763 sacks (8.4% of total purchased production) 40% of which were rejections due to "off" aromas and flavors picked up due to poor drying/storage and also to overuse or subsequent contact with agrochemicals. Most of the quality problems have arisen in deficient drying infrastructure.

Almacafe functions as the NFCG's logistical operator and plays the key role in the post harvest commercialization process both domestically and externally. It manages a national network of warehouses that collect, store, process, inspect, and ship 30%-35% of Colombia's coffee. From these warehouses credit is extended to cooperatives for their local purchases of coffee. The strategic locations of their offices and their consistent and ready access to financing provide fast liquidity to the cooperatives and the farmers who form them even in some of the more remote

¹⁸ ALMACAFE is the Federation's coffee storage and logistics facility for internal and external commercialization of coffee.

rural areas. Almacafe also checks the standards (weight and quality) of all the coffee that passes into its storage facilities providing a valuable control point. Its own ISO 9000 certification facilitates a high international standard of operation. In the warehouses visual inspection is complemented by sophisticated cupping laboratories that maintain complete records of tests. It is from these warehouses that samples are sent and approvals received from overseas buyers. Almacafe also manages the collection of the export tax or “contribución”.

Ecological management of byproduct and waste

The majority of the world’s fresh water is used for agriculture and coffee processing also uses considerable quantities. What is more important is that the typical use of this water for processing creates considerable pollution as a result of the contaminant by-products which remain in the water. Indeed, a midsize processing operation can cause as much water pollution as a small town. Colombia has been at the forefront with new pulping and washing innovations and efforts have been made by the NFCG to preserve water sources: river banks have been reforested and both public and private facilities have been built for the decontamination of processing water and the appropriate processing of solid farm wastes.

CENICAFE has developed what is known as the ecologically friendly post-harvesting system, BECOLSUB¹⁹. This system can reduce water demand during processing by more than 95%. The conventional process uses 50 liters of water per kilogram of dried coffee, while the BECOLSUB uses only 1 liter of water. As a consequence of its reduced water use this system reduces polluting by-products that enter waterways by 90%.

So far nearly 12,000 coffee-farms are using this new method. However, because of its considerable expense, it is only available to smaller farmers when they can organize adequately to invest in and manage the BECOLSUB.

Today, there are no economic incentives to rationalize water usage because contamination and excessive usage during coffee post-harvesting is not a problem affecting coffee’s cost structure. On the other hand, increasing social pressure has turned it into a priority of considerable proportions. In the future, water contamination will be an additional cost facing coffee producers once the already sanctioned water contamination tax begins to be enforced. However, a possible solution to encourage small farmers to adopt environmentally friendly technology could be the channeling of tax revenues coming from the enforcement of the contamination tax to help them finance their investment in the BECOLSUB and related technologies. In that way the tax would also be contributing directly to reducing contamination.

Other simple and low-cost improvements can also be implemented to reduce water use and its contact time with coffee contaminants. According to NFCG’s Technical Management, water usage could be reduced from 50 liters per kilo of dried coffee to somewhere around 10 liters by

¹⁹ BECOLSUB stands for *Beneficiadero Ecológico con Manejo de Subproductos* which translates into Ecologically Friendly Processing System with Byproduct Management. Dr. Black of the University of the Andes, has conducted a thorough evaluation of this technology.

simply rationalizing its usage. Research and cost benefit analyses could help to develop a set of general solution for all coffee growers regardless of size.

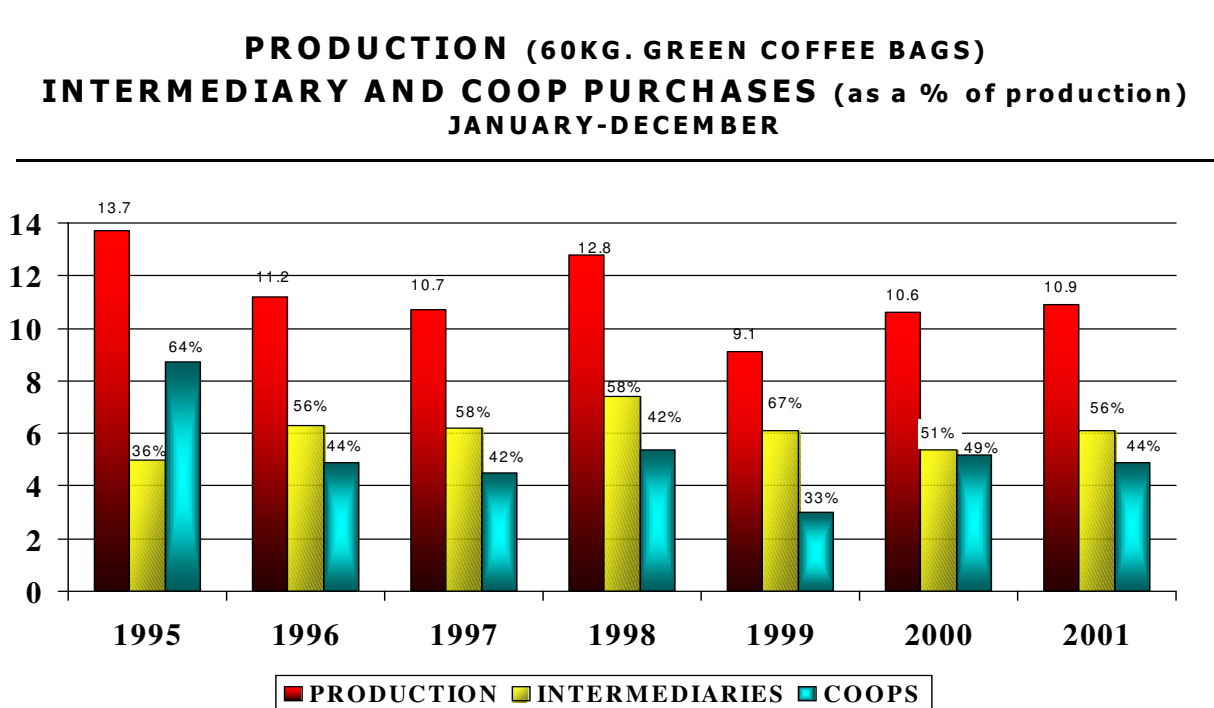
7. Marketing

Internal Market Channels

Colombia enjoys relatively efficient and diverse internal channels for marketing its coffee. Exporters, either private or NFCG, purchase two different types of coffee in the internal market: parchment and green coffee. For the parchment coffee there are two marketing channels from the growers: intermediaries and coops. For the year 2001, the intermediaries purchased 56% of the production and the coops purchased 44%.

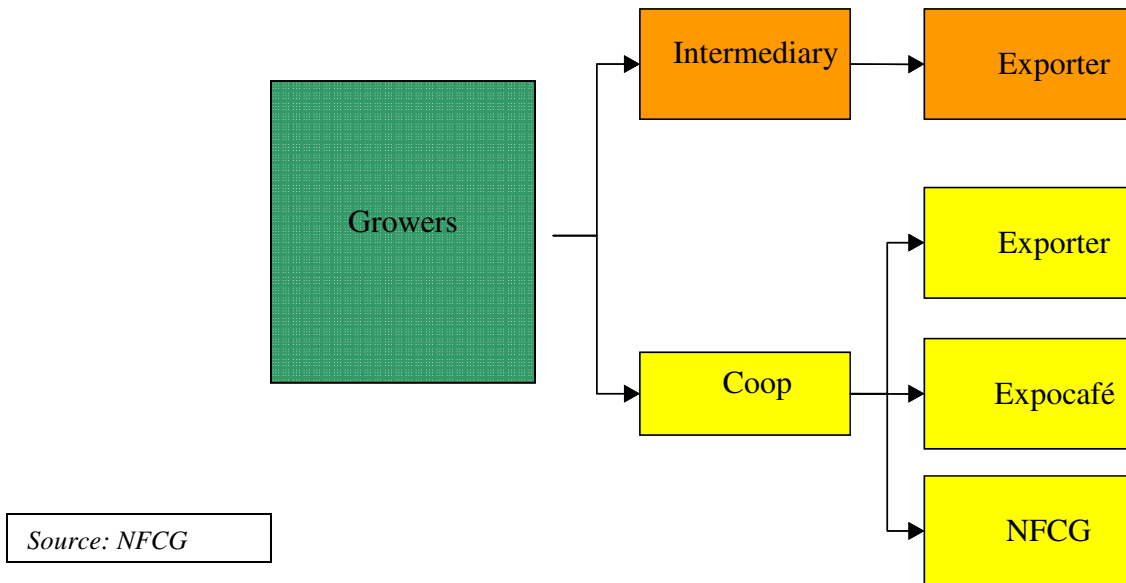
There are two kinds of intermediaries; those who purchase coffee at their own risk, which means with their own financial resources, expecting to make a margin in the process, and those who buy coffee on behalf of private exporters, who provide them with funds. The intermediaries who purchase coffee at their own risk have no enforcing commitments to sell to their clients, so they are free to sell their coffee to whomever gives them the best price. They usually sell to private exporters but they can also sell it to millers who transform the parchment coffee into green exportable coffee and, in turn, sell it to exporters.

Chart 7



Coops were created in part as the purchasing arm of the NFCG. Though initially the FNC sponsored them, today they are mostly autonomous and have their own management and financial controls. There are 40 coops nationwide that own 500 purchasing points. The Coops can sell either to the NFCG or to Expocafé, their own coffee exporter. The NFCG can supply them with the financial resources to purchase the coffee if it is sold to NFCG. This cash advance, routed through Almacafe is cost free. However, if they sell to Expocafé, using the funds provided by the NFCG, they are charged 15% simple fees on the borrowed funds. They can only sell to Private Exporters if they use their own financial resources for purchasing the coffee.

Figure 2. Coffee Flows from Growers to Market



Green coffee is purchased in the internal market through coops or through millers. Private exporters usually buy from the millers, who expect to make their profits on the yield of transforming the parchment into green coffee and the value of the coffee sub-products market. Sub-products are the remaining low quality coffee products resulting after parchment coffee is milled. They are sold to the national industry for processed coffees. The decision of the coops to sell green or parchment coffee also relies heavily on the value of the sub-products market. If the price for these sub-products is competitive they prefer to sell green coffee and market the sub-products separately.

Costs of marketing

The marketing costs can be divided into two groups: the costs of the purchasing agent, and the costs of the exporter. Grower marketing costs tend to be very low in Colombia and oscillate between 1.2% and 1.4% of the total export cost (currently equivalent to less than US\$.01 per

pound)²⁰ The purchasing agent's costs encompass everything between the moment when the coffee is bought from the grower until the moment it is sold to the private exporter. The costs of the exporter include all the costs of transforming the raw material (parchment) and delivering the final product (green beans) to the client. The marketing costs for the coops are described in the following Table.

Table 4.

Costs of Marketing for COOPS	Us\$/lb.	% of FOB
Labor costs	0.34	0.56%
Transportation	0.61	1.00%
Transportation insurance	0.11	0.17%
Financial costs and taxes	0.18	0.30%
Fixed costs	0.37	0.61%
Other costs	0.50	0.82%
Total	2.11	3.47%

Source: Consolidated report of the coops for the year 2001

There is no reliable data for intermediaries' marketing costs. However, evidence clearly indicates that costs, as well as margins, vary significantly from region to region and appear to depend on the presence of coops in their particular market. For instance it is known that in the areas where there are no coops, intermediaries pay a price that is between 10% and 70% less than the equivalent "theoretical" price of the NFCG²¹. This can be explained in part by less competition and in part by the higher costs of operating in areas that are less remunerative for various reasons including distance to market, low-volume, and high security risk.

The average cost of marketing for exporters is described in the Table below²². It is important to notice that in addition to the costs of transformation, there is an important source of income, the income for selling the sub-products.

²⁰ This consists primarily of transport and packaging. There are, of course very significant variations based on a number of factors i.e. scale economies and market distance. Diego Pizano, personal communication June 4, 2002.

²¹ Study done by the Coops Division at NFCG in December 2001. Difference in prices in the towns where coops have been closed:

San Adolfo (Huila)	-10%
Arboleda (Caldas)	-20%
Vergara (Cundinamarca)	-40%
Garagoa (Boyacá)	-70%

²² "The Exporters' Account" as of April 23th, 2002.

Table 5

EXPORTER COSTS:**Internal Costs**

Transportation	0.95	1.56%
Transportation insurance	0.24	0.39%
Milling	1.73	2.84%
Bags	0.45	0.74%
Port tariffs	0.63	1.04%
Overhead	0.94	1.54%
Opportunity cost	0.43	0.71%
Income for selling the sub-products	(2.05)	-3.37%
Total internal costs for exporters	3.32	5.46%

External Costs

Financial costs	1.10	1.81%
Collection commission	0.15	0.25%
Sales commission	0.32	0.53%
Total external costs for exporters	1.57	2.58%
Total Costs for Exporters	4.89	8.04%

Source: "The Exporters' Account" April 2002. Average costs for exporters published by NFCG daily.

There is a tax for all exporters who, in turn, transfer this cost to the growers. This tax, which is charged for every pound of green coffee exported, is called "contribución cafetera". The structure of the amount to be paid is decided by the National Committee which acts as the board of directors of the National Coffee Fund. For the year 2002, the amount of "contribución cafetera" varies according to the level of the Colombian FOB sale price. Therefore, on April 23rd, 2002 the total cost of marketing was US\$.076/lb. which represents about 12.5% of the FOB price for that date (US\$.68/lb).

Table 6.

Costs of Marketing

	Us¢/lb.	% of FOB price
Costs for Coops	2.11	3.47%
Costs for Exporters	4.89	8.04%
Contribución Cafetera	0.60	0.99%
Net costs from purchasing point to FOB	7.60	12.50%

Pricing efficiencies

The NFCG holds among its responsibilities transferring a fair market price to coffee growers and guaranteeing the purchase of all coffees offered which comply with pre-determined and nationally known quality requirements. Transferring a fair price means, transferring to the coffee growers as much of the sales price as possible, only deducting from it the costs of marketing.

The NFCG has an everyday presence buying coffee in the market and publicly announcing its purchasing price daily.

A common market practice by other purchasing agents and exporters is to use the NFCG public price as a benchmark for calculating their own prices according to their coffee supply needs. Therefore, under liberal market conditions, this mechanism helps coffee growers negotiate a transparent price.

When the NFCG announces its daily purchasing price, each of the agencies of the NFCG logistics operator (Almacafe S.A) discounts transportation costs in order to calculate a purchasing price at their corresponding geographical location. Coops, in turn, discount their own margins as well as transportation costs from each of their purchasing points. At times, the large margins discounted by coops, compared to those of intermediaries, can significantly reduce the price received by coffee growers or even make them on competitive with intermediaries.

Farmers % of FOB market price

According to the costs of marketing described above, and given that the NFCG's price is generally used as the benchmark, farmers in April 2002 received around 87.5% of the FOB price, when selling their coffee through the coop system. The general average over the last 10 years has been between 70-75%. This percentage may vary significantly depending on the exporter and whether intermediaries are used.

Quality controls

Buyers of Colombian coffee have constantly paid a significant premium over the The New York Board of Trade (NYBOT)²³ coffee contract price because of its quality and consistency.

The national government through the FNC has delegated to the NFCG the determination of green bean quality standards for export, as well as the responsibility of conducting export quality control processes.

The final quality control evaluations take place at port, where the product characteristics are verified against the exporting standards. The cargo is sampled on a 100% basis, and analyzed to

²³ The New York Board of Trade is home to the Coffee, Cocoa, and Sugar Exchange sometimes called the "C" market and its listed contract prices set the benchmark for arabica coffee being trading.

determine: size, weight and shape of the beans, moisture, physical defects, aroma, color and cup taste. The NFCG has the power to stop any shipment.

All agents, processors, and exporters, therefore find themselves compelled to inspect their product. Coffee sellers whose product fulfills all purchasing quality requirements are paid the complete current price. When offering a quality different from the standard, they will be charged a discount or in some cases receive a bonus accounting for the differences.

Size and realistic growth of potential domestic market

One of the opportunities in such a low price market is the development of domestic markets that have not grown in recent years²⁴. While the current economic situation appears to make this difficult it is still a worthwhile long-term strategy to pursue. With adequate stimulus the results could be considerable. A similar social profile in Brazil has responded to initiatives in recent years that have dramatically grown its domestic market to become the world's second-largest consumer of coffee. A similar growth rate in Colombia could add more than a million bags of coffee to current consumption thereby nearly doubling its domestic consumption in just a few years.

Between 1968 and 1986 domestic consumption of coffee grew at an annual rate of 4.6 %. This was in great part due to the NFCG's price subsidies for the domestic coffee market. When these subsidies ended after 19 years in 1987, the domestic consumer price rose 140% plunging the per capita consumption 33% to around 1.5 million bags. Despite some subsequent growth in consumption in 1998 the internal market was about 1,550,000 bags. The recent economic downturn shows internal consumption for the year 2001 was between 1,200,000 and 1,350,000 60kg. bags. The lower end of the range is the estimate of the main coffee roasters and the upper number is the one of the NFCG.

Consumption has decreased, as a result of a reduction in the number of cups per capita, rather than a loss in the actual number of consumers. A significant part of the market for roasted coffee has been replaced by soluble coffee. While in 1988 this kind of coffee had a share of the market of 6%, for the year 2001 it had increased to 12%. One of the primary reasons for this shift appears to be reduced consumer purchasing power since there is evidence that other beverages such as juice and soda have also failed to grow. The consumer price index and Colombia had an average annual growth rate of nearly 22% during the 1990s. Another factor is the change in breakfast habits favoring speedier preparation and consumption.

²⁴ 2.09 kg green coffee per capita and reduction from 2.0 cups per day in 1997 to 1.8 cups per day in 1999 according to Federación Nacional de Cafeteros. 1999. Estudio de Consumo en las 5 Principales Ciudades.

The International Marketing Chain

There is strong empirical evidence showing that the gap between coffee export prices and retail prices has been increasing in the last twenty years. In a paper published by the World Bank Economic Review, Morisset (1998) indicated that between 1975 and 1993 the external price of coffee declined by 18% while the retail price paid by consumers increased 240%. He was not able to fully explain this result as a consequence of increasing costs or new trade barriers. Many coffee experts believe that market structures and the growing bargaining power of international coffee traders and roasters is one of the main factors behind this phenomenon.

There is clearly a growing imbalance in the distribution of resources along the supply chain, within the global coffee economy. During the years when the economic clauses of the International Coffee Agreement were in operation (1980's), final consumers were spending around \$30 billion and about one third reached the producing countries (\$10 billion). According to the ICO and other sources, in the year 2000 consumers spent 55-57 billion and producers got around 7.5 billion, that is around 15%. For the year 2002, Nestlé estimates that the world will drink 765 billion cups of coffee (in home and out home consumption) with a market value of 80 billion dollars. If coffee producers continue to get an average price of only 40 cents per pound, they will get less than 5 billion dollars in revenue this year, which is less than 7% of the retail value.

These estimates are consistent with information from other sources. In 1989 the Economist Intelligence Unit prepared a chart breaking down the retail price of washed coffees into its main components. According to that estimation, producing countries were getting about 40% of the retail price at the FOB level. A similar exercise carried out by the NFCG in April 2002 shows that in the case of Colombian coffee, even with its premium reputation, this proportion is now less than 22%.

Another way of looking at this issue is to compare retail prices with unit value of coffee imports for the main coffee consuming countries. According to the chart below, after growth from the 1991 nadir, the relation between these two variables has almost halved since 1995. In the case of the UK soluble market, robusta prices (the primary component of most soluble coffee) represented 14% of the UK retail price in 1998 and only 7.6% in the year 2000 (Charveriat)²⁵.

Not all of the loss of the growers' share in the final value is due to the concentration of the commercialization chain. A part is due to the new value added to the product in the consuming countries. Part of this is in the transformation process i.e. flavoring and decaffeinating and part is at the retail preparation level where the increase in the volume and price paid for coffees has been dramatic. The Seattle-style coffees that are an important driver in the growth of specialty coffees overall, involve many milk-based beverages whose proportion of coffee is actually quite small. In these cafes a 16 oz. cappuccino typically has only two ounces of coffee. An average specialty coffee beverage may contain only 1/45 pound of coffee for which a grower may receive about US \$.01. What is often excluded from this analysis is that an average of \$1.25 in the U.S. for a cup of specialty coffee must also include: one or two middlemen, roasting losses, preparation losses, milk, sweeteners and condiments, cups, wages, equipment costs, insurance,

²⁵ Based on ICO and LMC statistics

rents, and operating and capital costs. Although this explains some of the value added at the consumer level, the specialty market is still a tiny fraction of the overall market and it does not account for the widening disparity between producer prices and retail consumption.

Table 7. Shift in Values Distribution²⁶

COFFEE VALUES IN MAIN IMPORTING COUNTRIES													
Retail coffee prices and CIF value of green coffee component													
	1990			1995			2000			2001			
	(1)	(2)	%	(1)	(2)	%	(1)		%	(1)	(2)	%	
							Sales Program for Specialty 2002						
USA	2,89	0,72	25	4,11	1,59	39	3,63	1	28	3,21	0,61	19	
Denmark	3,62	0,65	18	5,74	1,8	31	3,65	0,99	27	3,36	0,64	19	
Germany	4,35	0,75	17	6,05	1,84	30	3,62	0,9	25	3,26	0,58	18	
France	2,71	0,67	25	4,06	1,61	40	2,32	0,81	35	2,05	0,52	25	
Italy	5,05	0,75	15	5,44	1,53	28	4,62	0,79	17	4,4	0,61	14	
Spain	3,37	0,66	20	4,41	1,57	36	2,82	0,72	26	-	0,44	-	
Japan	9,57	0,78	8	17,6	1,7	10	15,8	1,06	7	9,16	0,66	7	
(1) Retail Price of roasted coffee (US\$/pound)													
(2) Unitary value of green coffee imports (US\$/pound)													
Sources: ICO EB 3557/95 (C); Coffee Statistics March/01 and NFCG: Special Studies April 4 2002													

Promotional Program

Colombia's publicity campaign is undoubtedly the world's best-known. Indeed its trademark and logos are as widely recognized as many highly valued consumer brands. See Chart. This is certainly no small feat and merits recognition. Colombia's publicity has clearly been effective.

The publicity programs of Juan Valdéz and “100% Colombian Coffee” are part of a sophisticated and diversified Colombian strategy to increase the premium price paid for Colombian coffee. They include publicity campaigns in the print media, at both live and televised up sporting particularly in the USA. In the early days of its promotional programs the NFCG also contributed a share in cooperative advertising expenses to a number of U.S. roasters to encourage their promotion of 100% Colombian coffee with the Juan Valdéz and “100% Colombian coffee” logos. With its reputation firmly established, this is no longer done.

²⁶ Group represents 83% of consumption among consumer countries ICO

Table 8.

Brands	Logo Association	Logo Identification
Quaker Oats	94	77
CBS	90	65
Volkswagen	90	84
100% Colombian Coffee	85	53
Nike	84	79
Michelin	73	49
Prudential	72	4
United Dairy Association	68	4
AT&T	62	34
Woolmark	40	13
Starbucks	33	19
Continental	32	8



Source: 2000 Logo Study – Roper Starch Worldwide. Courtesy NFCG

Coffee producers have invested approximately 500 million dollars on Colombian coffee's promotional strategy since 1959. While no one questions the phenomenal success of Colombia's publicity program, its considerable expense inevitably raises the question of a cost-benefits analysis. However, it is difficult to adequately differentiate how much of the premium price received by Colombian coffee is actually related, directly and indirectly, to the publicity and even more difficult to do this looking back over a 43 year period. It is further difficult to gauge the collateral benefits of a brand that has been noted to improve the country's overall image.

A recent paper by the University of Maryland's Dr. Lozano²⁷ modeled a proof for the hypothesis that the brand strategy pursued by the NFCG's "Juan Valdez" and "100% Colombian Coffee" has had a positive and large effect on the aforementioned Colombian green coffee premium. According to Dr. Lozano at least half the premium can indeed be explained by the segmentation strategy pursued by the "100% Colombian" program. Among the other explanations for the premium price were arbitrage and the relative scarcity of Colombian Coffee with respect to other substitute qualities. The paper does not include a cost-benefit analysis of that strategy.

Harvard professor Rohit Deshpande notes in his case study of Colombian coffee (de Royere & Deshpande, 2001) that its promotional campaigns have been highly effective and have also benefited the country's image. He notes that it is perhaps the most successful such campaign for a product from a developing country. Deshpande and his co-author, Alexandra de Royere, mention that other products such as Chilean wine and Argentine beef have been unable to match

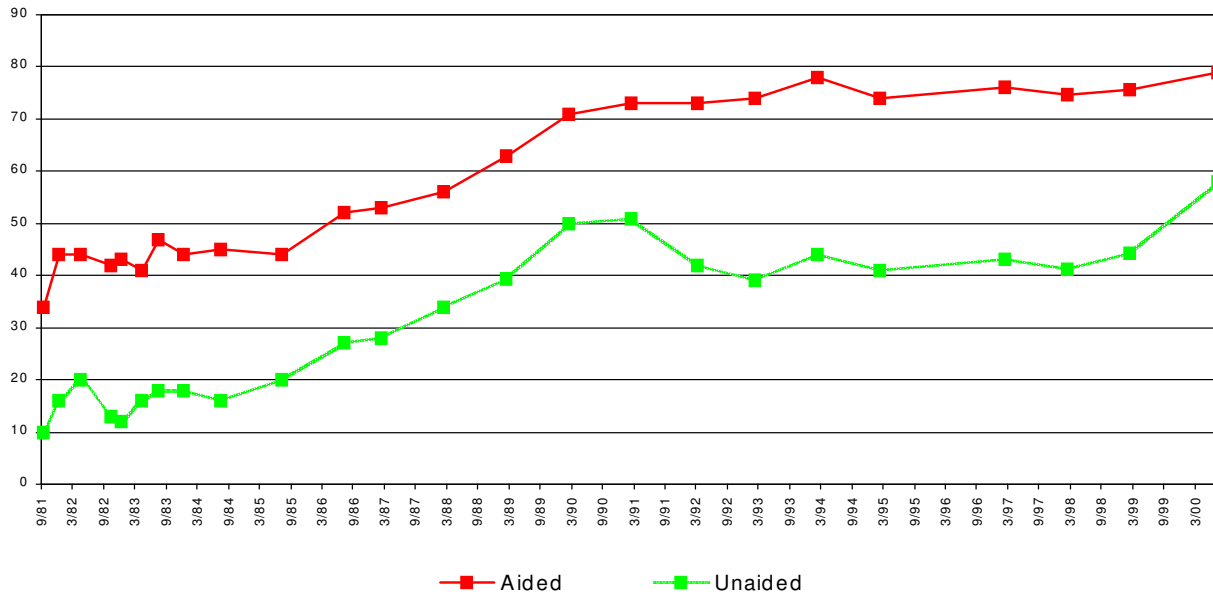
²⁷ The article, an econometric assessment, was prepared at the request of the New York office of the National Federation of Coffee Growers of Colombia. The NFCG compiled the background on the 100% Colombian Coffee Program as well as the data used for the empirical analysis.

the success of Colombia's coffee promotions in great part because of their lack of strong and coordinated sector organizations like Colombia's NFCG.

Capturing added value in the commercialization chain

Colombia's brand development and unified marketing are a positive byproduct of a unified coffee industry and set it apart from all other producing countries. Its pioneering marketing approaches have been unparalleled in the coffee world. In some categories, for example U.S. supermarkets, it has continued to grow its participation over the last two decades for its "100% Colombian" brand. In other markets however, like Germany's commercial blends, it has lost share. There is concern that it may have lost touch with the market's direction in recent years when it did not generate new strategic commercialization initiatives to address the erosion of its leadership position in the quality arena. Given its loss of share in major blends to lower quality competitors the quality arena is probably where it has its best competitive advantage. Although in recent years it has created only a few significant opportunities (i.e.a soluble product and soft drink) for its brand to directly capture value in downstream activities it has opportunities for much more. This is especially true considering that its heavy investments in its consumer branding that have resulted in unparalleled awareness. See Chart.

Chart 8. Awareness of Juan Valdez in the United States



Source: Macro International, Inc. – 2000 Coffee Tracking Study.

For decades, Colombia developed a quality niche as producer and supplier of green beans in world coffee markets. Meanwhile, on the demand side of the market, roasters have shown a remarkable capacity to add value to raw material (green beans). In so doing, these actors have been able to create and develop a number of brands and capture value by targeting segmented and fragmented consumer markets. While Colombian producers have obtained a respectable

decade average of US\$.10 premium over most other mild coffees²⁸, firms in consuming nations have captured increasingly larger downstream margins. In changing world markets, it must not only address competition from other producers but also from other actors along the supply chain.

The NFCG is a leader in using the Internet for its operations including the streamlining of logistics and document handling for its transactions. This certainly reduces costs and errors making them more competitive.

Differentiated Markets

Conceptually the overall market can be perceived as a quality pyramid with inexpensive soluble coffee at the bottom, standard commercial blends in the middle, and progressing toward high-end differentiated coffee at the top. While the top and bottom are growing at a healthy pace, the vast middle section has been stagnant. Colombia's general position is primarily in this middle tier and therefore presents a challenge in order to find sustainable future growth.

The differentiated markets could be valuable tools with which to earn higher revenues and superior market reputation. Even though Colombia managed to successfully differentiate its coffee as a higher quality alternative in the mass market for many years, this particular generic differentiator is increasingly less valid in today's competitive environment. While this can continue to serve as one component of its strategy, it probably can no longer be the only component. Various differentiated options can be valuable to help it benefit from leveraging its quality-oriented competitive advantage. These differentiated markets can and often do overlap each other. They include:

- Geographic Indications of Origin
- Gourmet and Specialty
- Organic
- Fair Trade
- Eco-friendly or shade grown

Its "100% Colombian" campaign is still successful and will continue as it accounts for approximately 2.5 million bags. However, Colombia's first mover advantage in the differentiated and quality market has been overtaken by more sophisticated segmentations such as those listed above. Even though these markets are still relatively small, they have demonstrated a consistent and rapid growth rate. Colombia has not successfully identified itself with these markets or secured a significant market position there. Furthermore, lower-cost

²⁸ Some others, Guatemala, for example enjoy equal and sometimes higher premiums albeit for smaller production quantities.

substitutions with unwashed Arabicas, other milds, and even Robustas have reduced its share in many blends and made its quality proposition less viable. A brief discussion of the primary characteristics of the major differentiated markets and their current trends follows in Annex II. The primary reasons for their importance as part of a strategy include:

1. Consistent high growth rates
2. Price premiums
3. Address global social and environmental concerns
4. Access market niches that are competitively different
5. Provide positive externalities in the field

Colombia's Efforts to Develop Differentiated Coffees

The NFCG has had commercialization projects for specialty coffees since 1995²⁹. Although these efforts began later than in some other producing countries, the NFCG program has nevertheless already help to register 54 brands and launch 72 production projects of specialty coffees with an annual export potential of 500,000 60Kg. bags. Many private exporters also promote these coffees and the total mid-term potential is estimated at 1.5 million bags.

The table below illustrates the NFCG exports of these types of coffee. On average these coffees have been sold at prices around US\$.90 per pound in 2001. This represents an approximate 14% average increase over the average coffee export price of \$.79/pound in 2001.

Table 9.

Differentiated Coffee Sales by the NFCG			
<i>(60 kg bags)</i>			
Type	1999	2000	2001
GIO and Gourmet	109,500	187,900	228,400
Exotics	7,100	5,700	20,300
Organics	1,000	600	2,100
TOTAL	117,600	194,200	250,800

Source: author compiled from NFCG data

²⁹ The term Specialty coffees here refers to different types of coffee depending on their particular quality characteristics such as physical and organoleptic properties, growing and planting practices, geographic origin, which make them eligible for a special premium price in the world market.

There are also been some advanced and rather creative initiatives. In 1999 the NFCG tried to develop a program of organic freeze dried coffee; 100,000 kgs of dried coffee were processed and sold in the international market. However the project was not continued because of marketing difficulties which resulted in 17 tons of the product not being sold. At the moment efforts are being made to obtain approval of the Japanese Ministry of Agriculture for its sale to Japan.

Other isolated projects of organic coffees, particularly in the Sierra Nevada de Santa Marta, are being set up slowly, but so far their production potential is less than 10,000 bags per year, so that Colombia's participation in this market continues to be very low. This is also the case with fair trade coffees whose sales barely reach 30,000 coffee bags a year with a capacity of almost double that. Its efforts with eco- friendly coffees have so far been limited to a handful of scattered private efforts.

Developments in production and commercialization of specialty coffees are incipient, the NFCG has already identified 86 potential producing areas according to their environmental, climatic and soil conditions. However there are still bottlenecks to be resolved in production and post-harvesting processes for the coffees produced in those regions.

In 2002 projected sales are expected to increase of approximately 20%. The table below indicates general categories and growth rates for each global region of distribution.

Table 10.

Program Specialty Sales 2002 60 kilo bags				
Types	North America	Europe	Japan	TOTAL
Exotics	10,000	3,000	3,000	16,000
Organics	500	2,000	2,000	4,500
Supremos	2,000	2,000	6,000	10,000
Regional GIO	45,000	30,000	60,000	135,00
Branded	5,000	10,000	15,000	30,000
Single Estate	1,500	1,000	2,000	4,500
Emerald Mountain			100,000	100,000
Total	64,000	48,000	188,000	300,000
Source: NFCG 2002				

Options to Capture Value

Colombia's price premium notwithstanding, much of Colombian coffee production is no longer very profitable at current world prices. One solution is the possibility of capturing part of the downstream margins. Colombia is in a unique position among producers to consider options such as selling its own brands in the processed mainstream retail markets in coffee consuming countries or developing private label business. To secure value in changing world markets, it must not only address competition from other producers but also from other actors along the supply chain. One of the priorities for the NFCG should be to independently evaluate its brand strategies to optimize its value to its owners.

An analysis of the NFCG experience in this would be a wise first step since entering consumer markets is not easy. However the potential advantages of leveraging the enormous investment in this brand appear to outweigh the risks. There are risks of damaging historically good relations with roasters and food multinationals, and the difficulty of positioning Colombian brands, given the oligopsonic power of giant distributors and food brokers.

Entering into the competitive world of roasting may provide benefits but it is doubtful that the producer will receive a better price whether his coffee is roasted domestically or externally. Caution should be exercised in any consideration of vertically integrating the value chain, because the resulting learning curve could cause considerable inefficiencies thereby reducing investment returns, and risking reputation if markets are poorly served. If entering the markets were considered, then a partnership with a major participant (a roaster or a food multinational) to finance and execute it would be ideal, perhaps using Juan Valdez or the logo as contributing capital.

Apart from mainstream branding strategies, for some of its production Colombia could also follow the example of Jamaica and other countries by investing more in a different sort of branding in its Geographic Indications of Origin, much as Blue Mountain and Antigua have done to develop exclusive competitive advantages. To do so it will have to clarify the definitions of these regions and legally protect them with adequate judicial recourse that can even be supported by trade associations in the United States and EU that are willing to help develop these systems and help monitor and protect their use in the market. The basic promotional investment and legal adaptations could yield potentially high proprietary benefits.

The NFCG also offers excellent web sites for consumers and domestic as well as international clients³⁰. Despite early forays into Internet sales auctions it has not elected to aggressively pursue B2B or B2C e-commerce as an option.

Supporting necessary extension training and certification of organic or fair-trade coffee not only provides producers with potential added value (price premiums and currently strong market demand) but also provides significant externalities such as improved environmental management, participation in a system of improving standards, and community-level organizational support. Again, only a limited portion of production will be able to enter these markets.

³⁰ www.juanvaldez.com and www.cafedecolombia.com

In a related area, Colombian can eventually leverage its eco- friendly and organic coffee experience capitalize on the market value of the biodiversity considerations inherent in many productive processes besides coffee. This includes medicinal plants, tropical fruits, ornamental plants, tea, nontimber forest products, cacao, wood, mariculture, and many more products. Carbon sequestration is also an emerging instrument that leverages environmental regulatory measures to potentially add value to sustainable agricultural practices that protect the environment.

Finally, there are a number of creative ways to diversify income generating opportunities that are immediately available. For example the NFCG could leverage their existing access to a large and organized number of growers in a number of ways that can benefit both. These can include renting infrastructure access to underused warehouses, reselling transportation space taking advantage of its ability to purchase transport at bulk transport rates, facilitating dedicated Internet use on its existing network, making the membership available for relevant commercial offers, and group procurement even for products beyond coffee related inputs such as farm equipment and even foods.

8. The Institutions and their Roles

The NFCG was established in 1927 as a private non-profit organization by the coffee growers. It implements regulatory policy for what has been called the most regulated sector in Colombia according to the decisions of the National Coffee Committee, the public-private body that acts as the managing board of the National Coffee Fund (FNC). Hence, as the implementer of policy and manager of the public funds of the NCF, it is the sector's dominant institution by far.

Under new leadership as of mid 2002, The NFCG is not only the pivotal sectoral institution at the national level but also a valuable resource for its reach and importance at the local levels and its very considerable experience and achievements in the international arena. While not a perfect organization, it is nevertheless regarded as the premier institution of its type in the coffee world.

Box 1.

Structure and functions of NFCG

The Municipal Committees are local bodies composed of producing members that are responsible for organizing and representing coffee growers at the municipal level and acting as their spokesmen in the departmental committees. There are committees in all municipalities having at least 400 coffee farms. Election to the committees are conducted every three years. The electoral process is democratic and office is open to all coffee growers who are members of the NFCG.

The Departmental Committees manage programs and represent the collection of municipalities at the regional/departmental level. They are composed of six members and their alternates and are elected by the municipal committees. There are 15 departmental committees: Antioquia, Boyacá, Caldas, Cauca, Cesar-Guajira, Cundinamarca, Huila, Magdalena, Nariño, Northern Santander, Quindío, Risaralda, Santander, Tolima and Valle.

The General Management oversees all programs of the national level including marketing, financial, technical research, extension services, quality control, and planning functions. It carries out the decisions of National Coffee Fund (FNC) conveyed through FNC's National Coffee Committee. It also serves as an international liaison to develop and execute marketing strategies. The General Manager of the NFCG is directly elected by the Coffee Congress and represents Colombia in all international coffee negotiations.

The National Coffee Committee is composed of eight representatives of coffee producers, along with the Ministers of Finance, External Relations, Trade and Agriculture, and the Director of the National Planning Department. Each has one vote with the exception of the Finance Minister who has the same number of votes as all the producer representatives put together. The Committee meets regularly to define coffee policy, and approve budgets and investment strategies of the National Coffee Fund.

The National Executive Committee is composed exclusively of the representatives of the coffee producers on the National Coffee Committee, meets regularly, and manages the NFCG's internal affairs following the decisions issued by the National Coffee Congress that pertain to it.

The National Coffee Congress is composed of elected representatives from all of the coffee growing departments accorded proportionally to each department's share of Colombia's total production. They meet annually to approve NFCG budget and the election of members to serve on the National Coffee Committee.

The National Coffee Fund (FNC) is Colombia's primary policy instrument and acts according to the decisions of the National Coffee Committee, the public-private body that serves as the managing board of the FNC. The key historical objectives of the FNC were to manage finances and policies in order to guarantee the internal price paid to producers and to regulate the supply and demand of green coffee primarily through the use of warehoused stocks. It was originally created to meet Colombia's quota obligations established under the Inter-American Coffee Agreement of 1940 wherein its simple purpose was to buy any amounts of coffee in excess of the quota. Its functions were subsequently expanded to also serve as a financial mechanism to stabilize domestic prices.

The FNC has been reasonably effective as a price stabilization scheme, as evidenced by the fact that the internal domestic price volatility over the past 26 years has been half that of the world coffee price volatility as measured by the coffee futures index. However, coffee price stabilization has come at a cost that especially at times of low world prices has been significant.

By the early 1990s the FNC had diversified its holdings, primarily the unspent reserves from the coffee tax, by owning financial corporations, a shipping line, an airline, real estate and a bank. A series of events led to a precarious financial condition for the FNC and this rapidly deteriorated after 1999³¹ in part as a result of low prices that eliminated much of its special coffee tax revenue. Eventually the floor price mechanism that it supported had to be abandoned in January 2001. Its assets slipped from \$1.5 billion in 1995 to \$400 million (mostly not liquid) in December of 2001. This meant few resources left for the implementation of coffee policy prompting the Colombian government to the rescue with an aid package. See Annex.

Its current financial condition is complex and its good credit rating has enabled it to take on debt to finance some of its work. Although leaner, it nevertheless retains much of its previous character and structure. It appears clear now that the improvement of its accountability and transparency are vital for an institution at its level of sectoral and national importance. Its most important functions include:

- price setting
- the provision of goods and services such as research, extension, and infrastructure
- guaranteed purchase of the coffee produced
- quality control
- sales and marketing overseas

A number of these functions overlap and occasionally provide useful economies of scale. However, it is more likely that the mixing of these functions also permits considerable inefficiencies. A recent report by the Comisión de Ajuste de la Institucionalidad Cafetera

³¹ Most of NCF's accumulated assets including the bank, the financial corporations, shipping company and others were lost.

(CAIC)³² judges that the cost of institutional expenditure - an average of \$.16 per pound over the last decade - was "excessive". CAIC likewise notes that many of the FNC's functions ought to operate independently with clearly separated accountability and resources. Such an institutional scheme will probably encourage more transparency and better management.

Since NFCG has been forced to slash its staffing and expenditures its capacity has suffered and caused a certain vacuum in the delivery of its many public functions (technical assistance, research, publicity for "Café de Colombia", health and education services, and other special programs). In 1996 US\$.22 per pound was spent on these functions. In the year 2001 this sum shrank to US\$.10 per pound and fell to its current low of US\$.05 per pound in 2002. This amount is currently being covered primarily by the FNC from its resources and loans since prices are too low to recover a meaningful tax from producers.

For decades, the NFCG has guaranteed a "minimum price" for all coffee produced in the country. Such price smoothing can typically mean that the domestic price may not communicate the right signals emanating from the world price³³. However, given the long-term nature of coffee investment (3-5 yr. tree maturity) and the volatile or reactionary nature of market signals, short term smoothing may not negatively impact overall sound decision-making. Indeed, there may have been considerable benefit in having consistent signals and a consistent policy.

This price guarantee has helped to ensure that producers receive close to market prices from all buyers³⁴. It should be noted that the system functioned for decades but when it recently broke down, growers were left without the capacity to manage price volatility and hedge risks. The question is often asked about whether the government should intervene directly in coffee or should its involvement in the coffee sector be similar to that in any other sector. It has been pointed out that other export sectors such as flowers and bananas have faced dramatic price fluctuations and real exchange appreciation and shown a significant capacity to respond without government subsidies. While this is certainly true and presents a valid point, it should be noted that these other sectors are also more concentrated and manageable than coffee.

The decision to transfer the full world price to growers is consistent with a vision that assumes they are mature enough to take the best decisions that maximize their well-being. Of course, this does not preclude the possibility of the 'contribución' tax. Of course, such taxation can only be considered fair when: it is a decision that is freely taken by the growers themselves; they are able to understand exactly what their tax is being used for; and how efficiently their money is being spent can be transparently determined. It is also important that the benefits of the sector's public taxation be first and foremost oriented to the provision of essential public goods, such as research and technical assistance.

³² This government appointed commission had access to a previous version of this document (The Colombia Coffee Policy Note). It released its independent recommendations, "El Café, Capital Social y Estratégico" as this document was being finalized.

³³ It must be said that Colombia's production has nevertheless appeared more responsive to the crisis than a number of other producing countries whose output did not decline markedly.

³⁴ NFCG buys about 35% of production.

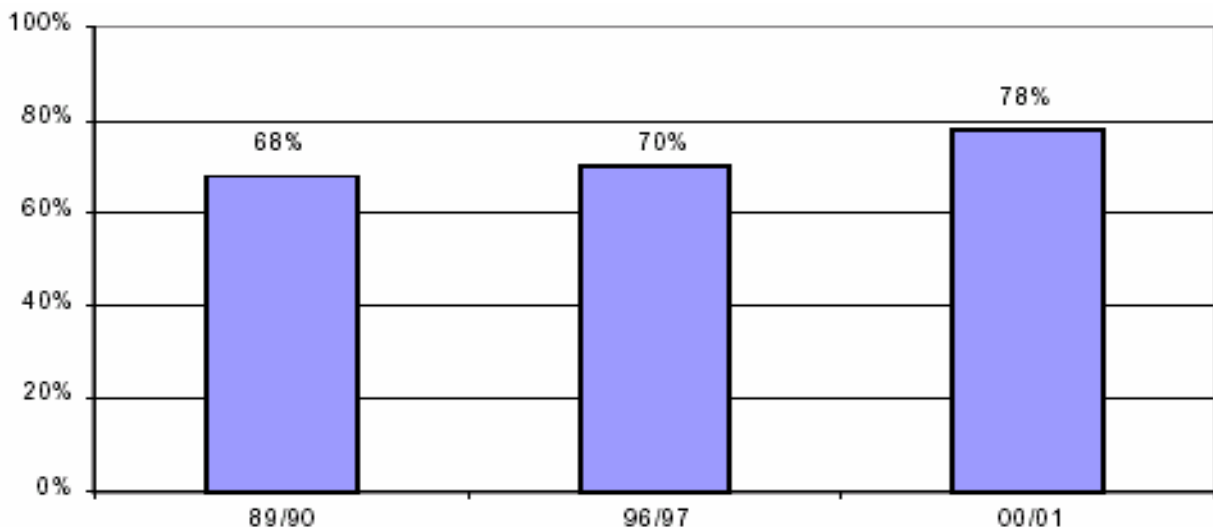
Business does not thrive if the tax rate levied on it is subject to constant change. In the case of coffee, its tax has historically changed in a discretionary and untransparent manner. Any tax must be reasonably low and clearly defined so that economic agents (coffee producers, commercial agents, exporters) can define long term strategies as well as new investment plans.

The CAIC report notes that historically both the coffee tax and the internal price have been subjected to manipulations that have produced distortions and inefficiencies. The absence of defined parameters for setting these prices have led to a possibly excessive retention of money by the FNC to the detriment of growers' income.

The 170 page draft report further notes that the government's role and participation (as a member of the managing National Coffee Committee) in setting internal prices and the coffee tax were occasionally influenced by macroeconomic policy goals and political priorities rather than the direct benefit of the coffee growers. Through the FNC coffee growers have contributed an estimated \$535 million to the national government in the last 17 years.

The NFCG's role as buyer of last resort has been hotly debated for its potential to distort the market. Nevertheless, there is evidence, in the presence of a steadily concentrating market that is characterized by some as oligopsonic (see chart), that this has provided a larger share of the market price to producers than might otherwise have occurred. It remains unclear how efficient this service has been. International evidence on the theme is mixed. The growers in at least two other major Latin American producers (Brazil and Guatemala) receive a similar or even higher percentage of the export price in the absence of institutional price setting. In the 1990s Colombia received a higher average world price than its closest competitors in Central America although Guatemala, with its higher percentage of large farmers, has since overtaken it. Colombia has traditionally also passed along a relatively high percentage of the export price to its producers. Colombian farmers receive a higher percentage than the majority of other Latin American and world producers with a ten-year average of approximately 70-75% of the export price.

Chart 9. **5 leading exporters as% of total coffee exports**



Source: NFCG from CAIC report 2002

It is not clear whether Colombia's highly regulated coffee marketing scheme is efficient or burdensome for the participants. For example, in principle, the NFCG and private exporters compete for available coffee but in practice, there appears to be an implicit quota. The mechanism for fixing a premium on Colombian coffee was not transparent and when fixed above the world market, exporters' competitiveness was affected. Varying the opening and closing dates for sales precluded the possibility of fixing long term contracts. These administrative measures may have inhibited the development of attractive investment possibilities in Colombia's coffee sector.

These measures highlight the problematic dual role of the NFCG as a regulatory agency and as a market participant handling 35% of exports. The CAIC confirms that even the administration and accounting functions for the primary and distinct roles of producer income stabilization and provision of public services have been mixed together. The resulting lack of transparency makes it nearly impossible to appropriately monitor or evaluate performance and difficult to control political manipulation. Any inefficiencies and excessive costs have ultimately been paid by the grower who is powerless to make an informed choice when this information is not transparent and readily available.

To be financially and institutionally viable the CAIC insists that the coffee institutions be significantly restructured in order to effectively fulfill their three essential functions: commercialization, provision of public services, and price stabilization. As such, a complete restructuring of administration, management, and accounting will be necessary in order to provide the essential transparency to evaluate and manage its functions in a more responsible and businesslike manner.

It is not only an internal restructuring or normative dispositions that will help establish an effective new institutional framework. A new framework must be the result of the construction of a relationship and cooperative programs with the main actors in the sector, civil society groups, commodity-based organizations (gremio), the private sector, local governments, and communities that represent local interests.

Research and development

CENICAFE is known as one of the world's leading coffee research institutions for its important agronomic achievements and its technical capacity. Its efforts have produced numerous breakthroughs in coffee technology. "Variedad Colombia", an advanced strain of the coffee plant that is more resistant to leaf rust disease was developed by CENICAFE. Its elite status is due, in part, to decades of investment in its research capabilities. Unfortunately it too lacks adequate monitoring and evaluation systems to properly determine its efficiency and the impartial application of its resources. The CAIC notes that CENICAFE has an accumulated inventory of basic research and production technology that could greatly benefit the coffee sector on the whole, especially smallholders, but it has been more focused on the high-tech and larger scale developments. Without appropriate evaluation and feedback mechanisms it will be difficult for this Center to be more responsive to its clientele, particularly smallholders.

CENICAFE can potentially be even more useful and sustainable by linking with other international institutions and selling services to all interested buyers, within and outside of Colombia, as a way to finance its R&D programs. In this way it can pursue the successful pattern of development demonstrated by leading international crop research centers such as The International Center for Tropical Agriculture (CIAT) or the International Potato Center (CIP) also in the region. Among the services it could offer is the certification of growing processes and/or origin. This would facilitate Colombia's move toward differentiated products and lend a unique credibility that many countries may not have.

National Sectoral Leadership

Its detractors have accused the leading coffee institutions of being inefficient, feudal fiefdoms and even of being mismanaged³⁵. While they may not be perfect, they have nonetheless fulfilled some very valuable roles. Indeed, many analysts would agree that despite its shortcomings the NFCG is the most successful coffee sector institution in the world and that much of Colombia's coffee success is due to its coordinated and cohesive policy and its marketing investments. It remains to be seen whether its functions and roles will be redesigned to be more transparent and facilitate its periodic evaluation in order to ensure that it can provide the best and most representative service for its constituents. Doing away with the Federation altogether - as some have suggested - is a drastic step whose consequences must be very carefully considered. Rather than 'throwing out the baby with the bath water', it may be more useful to help it become a leaner and better institution.

At present the resource allocation system divides funds to each department according to its percentage participation of total national coffee production, as established according to historical measurements (Encuesta Nacional Cafetera). The current method does not differentiate between social needs of the population and coffee production needs, even though part of those resources are meant to solve social needs of the coffee growing population and it does not necessary follow that the most productive regions have the greatest social needs. From the point of view of coffee production this can have a regressive effect because it does not reflect the dynamic behavior of certain regions in terms of coffee production. More frequent revisions of the allocation system would help it to better recognize and respond to these continuous changes.

There is of course the question of how much social work the NFCG ought to carry out. Despite its well-regarded record in this area, the CAIC report suggests that it should be limited to extension services, research, and international promotion of Colombian coffee.

The NFCG of the future will likely be leaner and more agile. It will have to adopt new technology faster and be more transparent for its stakeholders. Regardless of the roles that the NFCG evolves toward, it could be evaluated in a number of ways among which should be its capability to:

1. transmit the maximum economic value to the producer

³⁵ the current President of the Senate initiated a public debate about the mismanagement of the National Coffee Fund by its board of executives.

2. efficiently add value
3. distribute the value equitably
4. improve productivity and reduce transaction costs
5. transparently and legitimately represent its constituents
6. strategically improve the sector's competitiveness

Local and Regional Institutions

Apart from coffee's relevance with respect to being the main cash crop for at least 423,000 rural households in Colombia, the present crisis is bound to affect rural coffee-growing areas in general. The effect will be not only be felt in income reduction and the slowdown of economic activity, but also as the institutional void where the NFCG's local and regional organizations cease to benefit the population of the coffee growing areas in a significant way.

The Departmental Coffee Committees (DCCs) are the regional branches of the NFCG. They have a managing board made up of elected members of the coffee growing community and their job is to invest their budget in the social and economic development of their coffee growing areas. This budget is allocated according to each department's share in national coffee production. They are also responsible for carrying out extension services for coffee production. The DCCs' local representatives are the Municipal Coffee Committees (MCCs), which are made up of elected members of the local coffee community; their job is exclusively to channel local needs to the DCC level where decisions as to resource allocation are taken.

DCCs invested in the development of rural infrastructure including water supply systems, road building and repair, education infrastructure and electricity networks. They also implemented various other programs such as health care and home improvement programs, special education campaigns, and extension services in coffee production. Even though municipalities have taken over the bulk of these social services over the last decade, some were still fulfilled by the DCCs. A case in point is the World Bank-Ministry of Education's project for improving quality in rural education, where the DCCs are the local implementing agency in the coffee growing areas

The DCCs and MCCs in the different coffee growing areas developed as institutions highly dependent on the NFCG and their efficiency and power inhibited alternative regional organizations. Now that these rural systems have lost financial power and influence to carry out their important civic tasks, there are no institutional alternatives that can readily replace them.

Up until 1991, when the New Constitution mandated decentralization, the DCCs' investment in coffee growing areas was quite significant. However, from there onwards their impact has greatly diminished due to the increasing importance of local administrations and now the coffee crisis. Even their most basic function of extension services will be funded entirely by the central government in 2002 but probably not to the same levels as before.

According to a 1997 study³⁶, in 1980 the municipal governments of the coffee growing areas invested approximately 0.10% of GDP, while DCCs' investment in that same year was about 0.14% of GDP. By 1997 the municipal governments' investment grew threefold while DCC's remained static. By 2002 DCC's investments have essentially disappeared. In the face of the coffee crisis and the increased importance of local administrations as rural development agents, the question is raised of whether there is a realistic and sustainable role left for DCCs to play in coffee growing areas?

This type of local organization offers many advantages which allow it to deliver efficiently and effectively many social goods like no other organization public or private in Colombia's rural sector is capable. DCCs have developed a network of unique community organizations which allow for efficient delivery of diverse types of programs for the benefit of rural populations. DCCs have also developed an expertise in project implementation and management that is rarely found in rural areas; this is especially advantageous for local administrations which lack this capability. When funding for DCCs ceases altogether they will be forced to sell their services as engineering contractors, extension agents, consultants, and community organizers. This could be put to good use channeling both private and public, national and international resources.

A case example that illustrates one of the potentially useful new roles for DCCs was noted in a recent governmental evaluation (DNP, 2001) of the effectiveness of 'Familias en Acción', a program designed to provide income support for poor families. It concluded that its primary constraint was the difficulty in reaching poor rural families and the lack of an organizational network for its effective implementation. The DCC's could potentially provide that network.

Rather than focusing exclusively on the apex organizations like the NFCG, government policy can also broadly promote more localized organizations of producers. Once these are recognized as legal entities and can be held responsible by their constituents they can have a positive effect by empowering local communities to better handle their own development issues. Providing support for institutional capacity building is critical in order for these organizations to manage their affairs, democratically represent their constituents, and develop adequate commercial skills. The now more independent cooperative structure that was formerly part of the NFCG is a good example of this decentralized empowerment while still maintaining useful ties with the NFCG.

9. Financing and Credit: the unsolved crisis

For many decades the issue of credit has been a priority for producers. In 1930 they helped to create the Agricultural Savings Bank (Caja Agraria) and in 1953 the Coffee Bank (Banco Cafetero). Despite the overall historic success of coffee private financial institutions are not disposed to extending credit in rural areas and to small producers. This situation is common to rural areas in all developing countries due primarily to three reasons:

³⁶ CRECE 1997

1. the inability of these often urban-based financial institutions to adequately understand and manage the needs of small farmers
2. the high-risk and limited security of collateral (i.e. rural land)
3. the inordinately high-cost of managing numerous small credit lines

Both public and private financial institutions to support the coffee sector have undergone dramatic changes in the past decade that have significantly reduced the number of outlets and the availability of credit. This appears to be more pronounced in rural areas and can be measured in the contraction of credit flows to agriculture from banks. This declined approximately 16% between 1998 and 2001. In real terms small farmers have seen a drastic double-digit annual decline in formal credit over the last five years that amounts to approximately a 60% reduction overall (Brizzi, Gomez & McMahon, 2002). The 1999 dissolution of the Caja Agraria to help correct the distortions in the world financial markets has unfortunately left little effective public management of rural finance in its wake. Finagro was created by the government to help resolve some of these problems and to help channel credit to the agrarian sector. A Guarantee Fund with Banco Agrario that was set up in 2001 was also designed to help producers secure and manage their credit needs.

Nevertheless, the considerable shifts in the private financial sector leave a credit vacuum and make it increasingly difficult to overcome the high transaction costs of rural lending. This is further complicated by Colombia's rural violence that impedes the functioning of public institutions and deters private-sector involvement. As a result it is all the more important to support institutional arrangements that facilitate informal credit transactions. A responsive regulatory structure, provision of incentives and technical assistance for intermediary capacity such as training in credit management and improved financial systems and services will facilitate the flow of credit from informal sources such as producer organizations, traders and trade associations, input suppliers and processing facilities. Brizzi, Gomez & McMahon (2002) point out that informal credit is already very important according to two studies in 1997 and 1999 showing that while only 15% of rural households received credit, fully one-third of these relied on informal channels. Rebuilding these informal channels so that they can mobilize savings and develop financial products such as insurance, investment funds, and credit information systems is a necessary first step toward the eventual rebuilding of more formal financial systems.

With the decrease in world coffee prices during the 1990s, most coffee producers had to undergo numerous credit restructurings. This has created a complex set of problems not only for Colombia but for many other coffee producing countries as well.

Banks and other rural financial institutions are not willing to extend new credit to coffee sector as long as prices remain depressed and the sector does not clear its old (restructured) debts. Restructuring may also demoralize good debtors. The formal financial sector does not have an adequate risk model to evaluate credit worthiness in the agricultural sector, including difficulties in forecasting coffee prices and that, as well as other sources of market failure, has made it shun the sector. Agricultural producers have turned to informal credit sources such as suppliers of

agricultural inputs or entrepreneurial opportunists with their correspondingly higher rates of interest.

Recent studies have identified the problem as market failure due mainly to asymmetry in information, lack of adequate guarantees, and perceived low internal rates of return that make agricultural projects financially unattractive (Marulanda Consultores, 2001). Rural security problems are an aggravating issue. It is vital to provide training on the distinct vagaries of agricultural financing (i.e. seasonality) and it would be helpful to develop appropriate coverage mechanisms which separate market risks (output, prices, and quality) from financial risks (rates of interest, liquidity, and rate of exchange). Stimulating the financial sector's interest in agricultural projects may also initially require additional incentives.

The unsolved market failure of the rural credit system has reduced the availability and impact of formal financial services in rural areas. The extent to which farmers are turning to informal credit sources or even the amount of farmer's savings is unknown. Currently the World Bank is preparing for an extensive survey of supply and demand for rural credit services. These studies intended to provide a comprehensive picture of the different financial services and finance systems available in rural areas, their geographical distribution, and the structure of the demand for them.

Experiences derived from the Productive Alliances Project (Marulanda Consultores 2000), provide some indications as to what can be gained, in terms of financing investment in agricultural production from joint ventures between organized producers and agents along the chain of commercialization. Producers benefit from the alliance by reducing their market and price risks and commercialization agents get a guaranteed supply. Once this sort of scheme is effective its overall rate of return increases making it more attractive for potential financial investors. Although this is not a solution for the entire sector, some coffee producers can benefit from these sorts of alliances and private Colombian exporters have already manifested an interest in developing such joint ventures.

10. Risk management and safety nets

Price Risk Management

For the purpose of this document we take a very basic definition of Coffee Price Risk Management in Colombia as the utilization of either local mechanisms or international financial instruments in order to reduce price risk. In this regard, substantial changes occurred within the country's coffee policy after 1999 and particularly during 2001. To better understand the situation it is worth noting that the sectoral participants can be divided into five categories:

1. Farmers
2. Co-operatives
3. Private Exporters

4. NFCG, acting as an exporter of the coffee purchased with resources from the FNC
5. The FNC, acting as a stabilization entity

Farmers: Coffee farmers in Colombia have always enjoyed the benefit of a price floor given to them by The FNC. Ever since 1940, a tax, namely the “contribución”, was levied on them as a means to support coffee institutions and programs. Since November 1997, the tax structure was such that at low international prices it only accounted for institutional costs, but as prices rose, it also replenished The FNC foreseeing periods of minimum price guarantee.

At that time, NFCG determined its purchasing price and conveyed this to all participants in the market. The resulting price then became the benchmark against which any other exporter had to compete in order to buy coffee in the domestic market.

The floor mechanism operated as follows: if the NFCG price formula resulted in a price that was below the floor, The NFCG would offer to buy coffee at the floor price, otherwise it would pay the price obtained from the formula. The formula was based on the theoretical price that an exporter paid in the internal market, if his main sources of income were determined by the NYBOT coffee futures first delivery month, plus a Colombian coffee premium, minus a certain number of costs incurred in the export process. The floor level set by the National Coffee Committee was based on the assumption that it would be the minimum income level that would meet coffee farmers’ needs. The FNC’s rapidly deteriorating financial structure during 1999-2000, forced it to abandon the floor mechanism in January of 2001.

Today, The NFCG’s price is no longer the result of a formula and farmers are fully exposed to the NYBOT price volatility.

Co-operatives: There are 40 co-operatives that act as The NFCG’s coffee purchasing agents. They function based on a network of 500 purchasing points spread throughout the country, in which they can pay cash to any farmer that wishes to sell export-quality coffee. The money to purchase the coffee belongs to The FNC, but is managed by The NFCG.

Up until 2001, co-operatives enjoyed the benefit of an arbitrage opportunity at the moment of selling to The NFCG, coffees previously purchased from coffee growers. This opportunity can also be characterized as a “free Put” that was given to them by The NFCG through the set internal price formula.

Private Exporters: This group represents nearly 70% of Colombia's total export volume. They are well accustomed to the use of local and international financial instruments in order to manage their price risk. Some of them like to have small speculative positions in futures and options in their portfolios and some others simply speculate in the physical coffee bought in the internal market. Up until 2001, Private Exporters also enjoyed the benefit of an arbitrage opportunity at the moment of fixing a tax payment to The FNC. They collected this tax from farmers via a price discount. This opportunity was the result of a formula used to calculate the tax.

The NFCG: This participant, with more than 30% of the country’s exports, is the most important player in the internal market and has the additional responsibility, as opposed to any other

exporter, of honoring a purchase guarantee to any farmer who wishes to sell export-quality coffee. The NFCG introduced a separate Risk Management Division (RMD) in 1999 with the objective of identifying, measuring, and if possible, hedging all price risk exposures for it and the FNC.

At that time, the main sources of risk were:

- a) Commercial Risk: This risk rises from the time spanning between a coffee purchase and a sale, given that both prices are based on the NYBOT price and Foreign Exchange rate (and are hence exposed to their volatilities).
- b) Inventory Risk: Apart from the “commercial inventory”, The FNC held a significant volume amount of non-hedged past and old crop coffees.
- c) Price Floor Risk: The risk rising from the floor price given to farmers.
- d) Arbitrage Risk: The risk rising from the opportunities given to Co-operatives, The FNC’s clients in the international markets and Private Exporters.

The work and recommendations made by the RMD, along with the efforts made by the Commercial Manager’s office, served as the basis for a blueprint describing substantial company-wide changes The NFCG was to introduce. Today, the status of the above mentioned risks is as follows:

- a) Commercial Risk: The NFCG hedges all the coffee bought for commercial purposes.
- b) Inventory Risk: The inventory of past and old crop coffees has been reduced to the lowest level in the last twenty years yet remains un-hedged.
- c) Price Floor Risk: Eliminated in January 2001.
- d) Arbitrage Risk: Eliminated during 2001.

The FNC: The FNC's primary goal at its inception was to smooth of the flow of coffee supplied by managing considerable inventories of green coffee. This function ceased in 1989. Meanwhile another of the FNC's primary goals over nearly three decades has been to provide a price stabilization mechanism. It fulfilled that function reasonably well until it's reduced assets in the late 1990s were unable to bridge the necessary gaps created by the price crisis. It abandoned price stabilization in January 2001.

Given the financial constraints currently faced by The FNC, its function as a stabilization mechanism has evolved into one that provides a fair price to coffee growers on a daily basis, while maintaining a purchasing guarantee. Of course farmers are now fully exposed to external price volatility.

Other Risks

The local market is faced with other type of risks covered here briefly:

1. Differential Risk: The coffee commercialization price is based on a futures price and a Colombian coffee premium (differential). Since domestic coffee purchasing and sales takes place at different moments in time, the values of its price differentials may differ.

The futures price risk may be efficiently hedged by trading futures or futures options referring to the New York CSCE 'C' contract. Colombian coffee's differential variations are influenced by fundamental variables of the supply-demand relation for Colombian coffee and its substitute origins. There is a lack of financial instruments suited to hedge the Colombian coffee premium risk and in order to protect themselves, exporters must allow for provisions that will allow them to still be viable when their purchasing price is above market levels and/or when sales differentials are below purchasing price levels.

2. Foreign Exchange Risk: Coffee purchasing and sales involve different currencies, exposing market participants to foreign exchange risk. In Colombia's particular case, coffee is bought in Colombian Pesos and it may be sold abroad in US Dollars and other currencies. The foreign exchange risk results due to the time lag between the coffee purchases and the conversion of the invoices into Colombian pesos.

Exporters, especially in harvest, require large cash flows for accumulating inventories. They may face the need to pre-finance their activity, and they can do it in several ways: converting their invoices income to Colombian Pesos, foreign currency credit and/or local currency credit.

In order to guarantee predictable cash flows, which are a primary objective of hedging activities, Colombian coffee exporters typically use foreign exchange forward contracts and options.

3. Costs Risk: Exporters have the possibility of buying parchment coffee or green beans. When buying green beans, they can efficiently hedge their price risk using the NYBOT's 'C' contract.

When buying parchment coffee, even though the 'C' contract can be used for hedging, its efficiency decreases due to the need for transformation before the export takes place. Exporters therefore are exposed to the risk of obtaining higher processing costs that those implicitly discounted for calculating the purchasing price.

4. Country Risk: Guerrilla violence has begun to destabilize coffee growers' livelihoods. Traditionally, the coffee region was immune to this kind of problem, but the collapse in prices has taken a toll on farmers' income, forcing farmers to seek alternatives, sometimes in illicit employment, and to abandon their coffee plantations thus reducing safety in coffee regions. Guerrillas have a strong presence on major roads, and are stealing or destroying coffee trucks. At the very least they make it difficult and more costly to transport coffee through those routes. Additionally, at times illegal funds are "laundered" by buying coffee, thereby artificially raising prices to levels at which legitimate exporters become non-competitive.

5. Agricultural Yield Risk: The risk of losses generated by a lower than expected coffee volume or quality. It is faced primarily by farmers and by those market participants that transform parchment coffee into green exportable beans.

6. Credit Risk: It is faced by several market participants. The Private Exporters face it when they give money in advance to intermediaries, in order to buy coffee on their behalf. The FNC faces it when the coops do not fulfill their obligation to deliver the coffee they have bought with the FNC's financial resources and also fail to return the money. The FNC also faces credit risk with the growers, when buying coffee for future delivery. In this case, the FNC pays for at least part of the coffee in advance, and it is exposed to the default risk if the growers do not comply with their obligation.

7. Regulatory Risk: It is faced by several market participants. It is the risk of generating losses due to sudden changes in the national coffee policy, usually in the amount of the quasi-tax to be paid. Since the tax is paid when the coffee is exported, the FNC and the private exporters face the risk of collecting from the growers a smaller amount than the one they should pay. This is a result of the time lag between the purchase of the coffee and its export.

8. Logistics Risk: The risk of losses, faced across the whole supply-chain, due to problems in the logistics process, which include the transportation, storage, and transformation of the coffee.

With the elimination of the floor price mechanism offered by FNC in January 2001, small coffee farmers in Colombia have no access to formal instruments to deal with price risks. There are several informal instruments that farmers can use to reduce their overall risks. Farmers can:

- Diversify to include other crops in addition to coffee
- Diversify their labor by working outside their farm or non-farm employment
- Adapt their technology (i.e. using fewer inputs)

Safety Nets

In many coffee growing areas coffee's dominance means that price risk has a systemic effect on the overall rural economy and all economic activities, including non-farm activities, slow down. Thus, many people see migration to urban areas or even abroad as a solution. Social protection programs would need to target the vulnerable groups within rural communities that may not only include small, poor, farmers but also displaced people, the elderly, many indigenous peoples, and landless workers who because of low coffee prices cannot find employment on coffee farms.

Improvements in productivity and training in basic skills can be usefully targeted too many of these people who may be very dependent on low-productivity agriculture as their primary source of income. Permit culture and organic agriculture methods can do particularly useful to improve food security.

To support producers in periods of very low prices it is preferable to rely more on income transfer payments, such as those used in Mexico and Nicaragua, instead of price support. Income transfers have the advantage of being less distortionary in terms of incentives, compared to price support programs. Price support prevents necessary adjustments in production patterns. Price support programs may also prove to be costlier compared to income support, but income support programs may be more difficult to administer as they require information about the individual farmers (plot size, location, etc.). If prices rise, the FNC could be replenished and serve to provide a modified form of price stabilization using the markets- a sort of premium farmers pay for insurance - so long as it allows market/price signals to reach the producers.

The FNC, now no longer able to provide stability, rightly claims that it provides a fair price and maintains a purchasing guarantee. This is true although an information system might also provide a reasonable 'fair price' assurance at a much lower cost and there appears to already be an ample market to sell quality Colombian coffee. Of course, the FNC's role would be much harder to replace in remote, less contested markets where cooperatives and associations would have to intervene. A reasonable investigation or pilot study could test these alternatives.

Private exporters, now accounting for 65% of coffee exports, and the NFCG are very familiar with the types of financial instruments to hedge their price exposure. Currently, use of risk management instruments is primarily limited to their own short-term price exposure - from the moment they buy coffee from farmers to the moment they sell it - and benefits farmers very little. It may be useful to facilitate both the understanding and access of sound smallholder organizations and associations to risk management instruments, such as options traded at NYBOT that may offer at times an attractive solution to reduce their exposure.

Farmers also need to reduce their price uncertainty when they make their short-term investments and receive working capital loans. Because of their relatively small production size in general, coffee farmers need appropriate institutions that would aggregate enough volume of production and hedge it in the international market. Farmer cooperatives and producer associations, are amongst some of the institutional structures that farmers can use to access price risk management instruments. It would be valuable to support The Risk Management Dept. of the NFCG or other agencies such as The World Bank who, in partnership with other international organizations and the private sector, has initiated a project to enable groups of farmers to access price risk management instruments.

While debt restructuring in the credit arena will be important in settling old debt there are certain things to bear in mind. Debt forgiveness and write-offs provide disincentives for prudent risk management and thus, they need to be discouraged. New credits need to be accompanied by appropriate risk management instruments, much like the example of US bank loans to farmers. The provision of guarantees by the public sector could be problematic. Public guarantees are a poor bandage since they may encourage less due diligence by private financial institutions, and they may prove to become a financial burden for the government. Public guarantees without appropriate systems to screen loans and ensuring that appropriate risk management systems are in place will likely not work.

11. Coffee Policies

Exchange Rate

The main macro variable affecting coffee production in the medium term is the real exchange rate (RER). The real appreciation of the RER negatively affects coffee and other export goods. In the case of coffee production, as it is labor intensive (more than 70% of costs are labor costs), and labor is a non-tradable factor of production, its profitability is extremely sensitive to the RER level. During the 1990s the Colombian peso appreciated more than 30% in value against the dollar. The difference contributed to approximately 2 billion dollars in comparative income losses for the FNC during the decade.

A number of studies (Montenegro 1997; Cárdenas 1997) have cited that public expenditure was the primary cause of this appreciation. As with any other export sector, macroeconomic stability and a competitive exchange rate are critical factors for the sector's long-term planning.. Echavarría (2002, p. 6) notes that the RER is a variable that may not always be easily controlled by government and "export dynamism has to originate in many other sources, like productivity, to be sustainable". In the case of coffee production it means that a way to offset the pernicious effects of appreciation on its profitability is to increase physical productivity while at the same time keeping costs under control, or alternatively, keeping similar levels of productivity but reducing costs. Providing a highly competitive product through differentiation strategies which add market value to the product and may be negotiated in foreign currencies can also be useful in overcoming exchange rate difficulties.

Stabilization policies

In the past, there have been several attempts to stabilize the world coffee prices through the International Coffee Agreement (ICA). The ICA succeeded in keeping coffee prices higher and stable although price stabilization benefited mostly exporting countries with established higher quotas and penalized new dynamic entrants (Akiyama and Varangis, 1990). Since 1989, the ICA does not include economic clauses that would regulate the coffee market resulting in greater world price volatility and overall lower prices during the 1990s. From 1993 until its recent demise a producers' cartel, the Association of Coffee Producing Countries (ACPC) tried but failed to regulate the world coffee supply through a retention scheme.

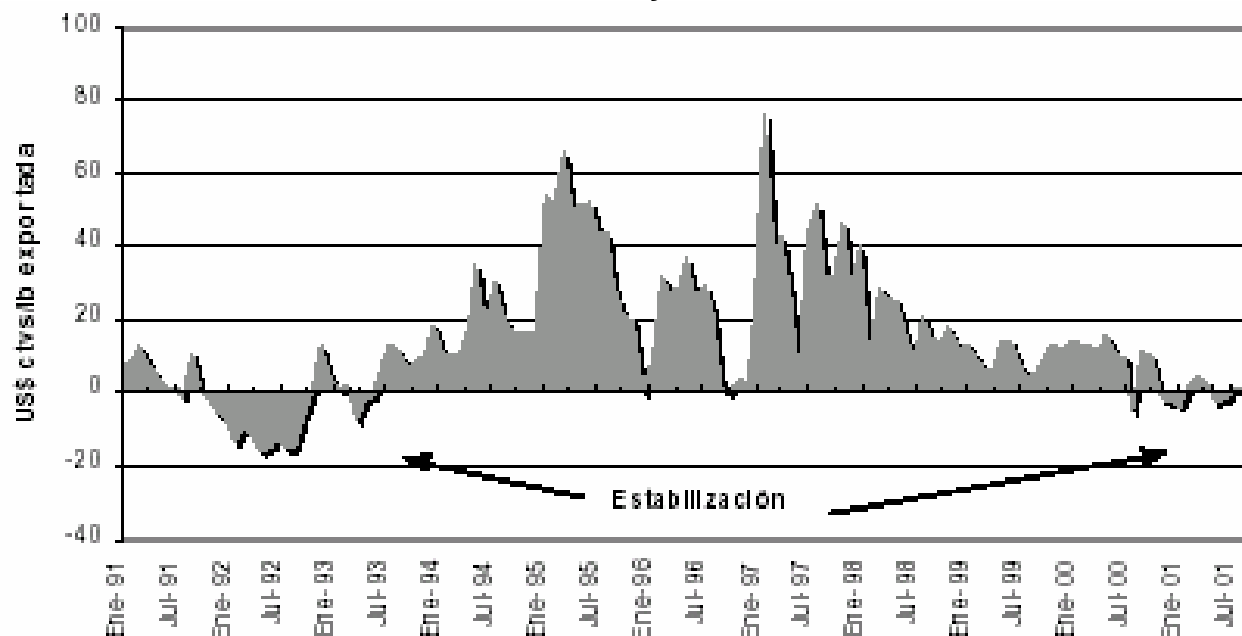
In addition to international efforts, several coffee producing countries (including Colombia, PNG, Cote d'Ivoire and Cameroon) have independently used price stabilization funds. Almost all of these stabilization funds have run into serious financial difficulties. In most cases the funds eventually went bankrupt. While it lasted, Colombia's was certainly the most successful, although its net worth has dramatically decreased and it can no longer perform its stabilization function. During the 1990s, several coffee producing countries tried to support domestic prices

through customized funds or the issuance of bonds (i.e. Costa Rica, Guatemala, El Salvador)³⁷. Nicaragua and Mexico used funds differently to support the income of small coffee producers by giving a fixed payment per hectare, with a cap on maximum farm size, rather than by production quantity. More recently Guatemala is using a fund to promote diversification, agro-processing, marketing, and debt restructuring. The various experiences with price support schemes and stabilization funds provide us with the following lessons:

1. Most price stabilization schemes aim to support domestic prices when world prices decline. The objective of higher prices rather than stable prices is almost impossible to maintain (Deaton, 1992; McIntire & Varangis, 1998).
2. If support is deemed absolutely necessary, the better approach is to support the income and/or the diversification of coffee farmers instead of supporting prices. Mexico and Nicaragua, for example have provided a support linked to amount of ha. under coffee so that there is less distortionary incentive to increase production in order to receive more.
3. Any price support scheme that maintains a higher price level removes the realistic incentives for necessary adjustments in terms of diversification and reducing production in marginal areas.

For a number of years domestic policies in the Colombian coffee sector have aimed at stabilizing coffee prices through a floor price mechanism to farmers from the FNC. For more than two decades of the FNC has met its goal as a price stabilization scheme, as evidenced by the fact that the internal price volatility has been half that of the world coffee price volatility as measured by the coffee futures index.

³⁷ Costa Rica's Costa Rica National Fund for Coffee Stabilization (FONECAFE) paid farmers \$6.38/qq during 1998-99, 1999-2000, and \$18.76/qq during 2000-01 with the obligation of a repayment by farmers if world prices increase above \$92/qq. Similar efforts by Guatemala and El Salvador were all funded through the issuance of bonds.

Chart 10. **Stabilization and accumulation by the FNC**

source: CAIC report 2002

However, coffee price stabilization has come at a cost that at times of low world prices has been significant. The precarious financial condition of the FNC rapidly deteriorated after 1999³⁸ in part as a result of low prices that eliminated much of its special coffee tax revenue and eventually the floor price mechanism was abandoned in January 2001. This meant few resources left for the implementation of coffee policy, so the Colombian government came to the rescue with a support package (see Annex I) and the FNC secured a credit line from the banks in order to continue the FNC's most basic functions.

The package is based on the assumption that world prices will recover to reasonable levels in around three years and this assumption carries some risk. Should the expected price scenario not occur, the sector would be left with an unsustainable supply structure, which would have been created with public incentives. Furthermore, while there is an official warning that the subsidy scheme has a limited time horizon, it may turn out to be politically difficult to remove should market conditions not improve as expected.

³⁸ Most of NCF's accumulated assets including the bank, the financial corporations, shipping company and others were lost.

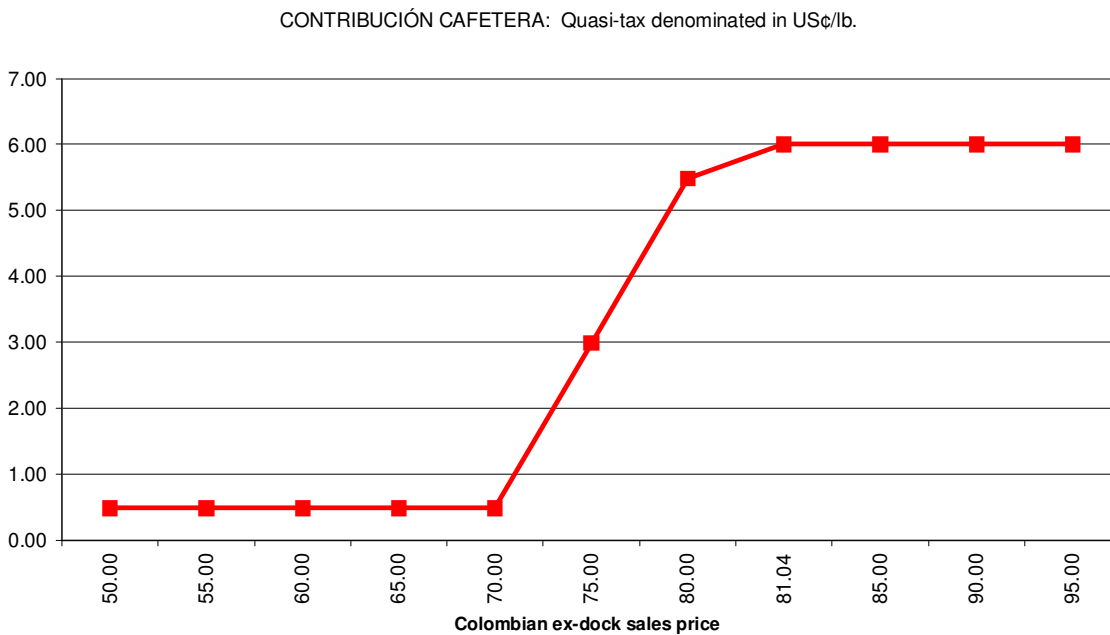
Taxes

The possibility of setting up a permanent coffee tax contribution in Colombia has been proposed as a solution. One option is for this contribution level to vary according to world coffee prices thus enabling savings during high price periods that would be employed to support production during low price periods. While the tax itself would be a feasible way of maintaining the cohesiveness of the sector's most useful strategies such as research and marketing, its usefulness for stabilization purposes may be limited and it presents at least two problems: First, the uncertainty generated by a tax which varies over time may discourage investment in the sector and second, the difficulty in determining the long term equilibrium price in order to fix the levels for the variable tax.

In December of 2001 the FNC proposed a flat tax of 5 cents per pound to maintain the NFCG's priority programs in the research, extension, and promotion and this may be one of the best solutions especially when combined with an option for a vote of the producers on special assessments in boom years to fund specific projects or initiatives.

For the year 2002, the amount of “contribución cafetera” varies according to the level of the Colombian FOB sale price., following the structure described in the graphic below. As of April 2002, the tax was US\$.006/lb, taking as a reference the current price of US\$.68/lb for Colombian coffee.

Chart 11.



Source: NFCG

Subsidies

At present subsidies which affect coffee production are: A) a subsidy for the renovation of coffee plantations and B) a price subsidy for coffee guaranteeing the farmer a minimum price support for his coffee production. Planting of new stock has been subsidized by the government at US\$.05 each tree, representing about 15% of the total upgrade costs on a hectare planting basis. Presently the government has been subsidizing the coffee price paid to the farmer at US\$.11 (Col \$240) per kg of dried coffee as long as the corresponding internal coffee price, according to coffee world price minus commercialization costs, remains below US\$1.16 (Col\$2,544) per kg of dried coffee. That reflects an export price of about US\$1.54 kg³⁹.

These subsidies are a public benefits whose formal intention is primarily to provide a safety net insuring the long-term health of the sector and to prevent some of the less able participants, who have few alternatives, from slipping into poverty. It is therefore worth examining some of the questions raised about the potential consequences of these subsidies.

Renovation is a necessary component of a competitive coffee sector and must be part of any long-term strategy. Since coffee tree renovation is a customary production practice that larger producers typically carry out in order to remain profitable, regardless of subsidies, the fact that they are as eligible for the subsidy as every one else, blunts the desired effect of supporting the poorest small producers who might otherwise be less able to maintain their production capacity, and turns it into a regressive instrument.

It has been noted that widespread renovation subsidies may induce decisions in coffee farmers resulting in supply capacities that do not correspond to the actual demand of world coffee markets. The logic behind renovation subsidies is to preserve and maintain a coffee plant stock which corresponds to desirable productivity levels. The NFCG estimates that these renovations will enable farmers to maintain an average annual output of approximately 12 million bags (it's a recent historic average) while doing so on considerably less acreage. This renovation will help to remove approximately 180,000 hectares of marginal, underproductive, and high-cost areas from coffee production.

Price-oriented subsidies such as the one in place also isolate producer's decisions from actual market conditions, thus distorting production capacity. Its most pernicious aspect is the political difficulties encountered when trying to stop or modify it that can result in making it a quasi-permanent subsidy.

The policy instruments of price and renovation subsidies may work against coffee growers' initiative to procure more sustainable and realistic productive structures on their farms, i.e. diversification initiatives within coffee or out of it that might secure better overall profitability for their farms.

³⁹ At an exchange rate of US\$1 to COL\$ 2300.

Among the alternatives to higher production levels is to support more sustainable production. CENICAFE has already researched and published on organic and environmentally friendly production. Some of these alternatives although less productive in terms of output volume, might be less risky due to fewer labor and input costs and therefore potentially more profitable, and environmentally more advantageous.

Future Options

Despite the complexity of the issues there are clear messages to be taken into account.

The options presented are of a long term and multi-sectoral nature and new strategies will have to take this into account. The options of risk management, market differentiation, diversification, managing marketing alliances are all knowledge intensive in which new knowledge has to be generated, transferred and internalized in the production, processing and marketing chain. In rural areas this implies increased access to basic education and training as well as more organization at the cooperative or association levels.

Colombia is a powerful participant in the coffee world and has strong advantages for producing and commercializing coffee in the world. This is especially true in the quality rather than the low-cost side of the market. Its institutions and its brand reputation are among its most important assets. However, its ability to respond to an evolving crisis has been limited due to its high production costs especially labor costs that are unlikely to diminish, the declining price/value ratio of its coffee, and its institutional shortcomings. The latter have led to undue political influence, inefficiencies, and a belated strategic market orientation.

Any sustainable policy improvement must revolve around revitalized institutions. These must be agile, accountable, and more transparent. While the federation is passing through a time of crisis it is nonetheless of the pivotal sectoral institution and will be central to the resolution of this crisis. Its importance at the local levels, its experience and achievements, and its dedicated new leadership all indicate that its performance will be critical for the welfare of the coffee sector well into the future. A set of private-sector-led and market-responsive policies are necessary to revitalize the position of Colombian coffee and stimulate the necessary shifts toward improved competitiveness. Such market-oriented development must integrate smallholders and also can have significant potential externalities (improved standards, environmentally friendly production practices, and so forth) and crossover effects in other rural subsectors.

One of the difficulties in establishing policy is its distinct impacts on producers of different sizes. Although it appears that large producers have a higher proportionate output, traditionally smallholders are known to be more viable productive when measured in diverse production terms. The trend towards smaller coffee plots, which can be managed by families will likely continue. Directing policy and infrastructure investments more toward so-called marginal areas may be justified by growing evidence that the marginal returns to investment there are higher on average than in the more advantaged areas (Altieri and Uphoff, 1999), provided that the

investments are not too scattered and sporadic (Hazell and Fan, 2000) and that adequate competitive factors of production exist in those areas. Otherwise they would be better targeted for diversification and social safety nets where necessary. While there's often inherent policy discrimination against smallholders that needs to be balanced, the needs of larger producers must also be adequately addressed since these can be not only very competitive but they also provide valuable employment opportunities. Medium-sized producers, in general terms, appear to be the least competitive according to the studies presented. Some farms and even certain sub-regions may have to exit coffee altogether.

Since crisis presents significant social problem, making it obvious that coffee growers will be unable to continue financing the social programs necessary to maintain public welfare in the coffee growing areas. As a result the government will have to reevaluate its role in coffee and consider the public and private alliances that would best serve the coffee sector in the long run.

Any sound policy recommendations must offer alternatives that focus on both improving competitiveness and reducing poverty among coffee growers. Policies, as a general caveat, should be consistent with the reasonable assumption that world prices will remain low for the near or medium term.

12. Integration With the Process of Rural Development

Smallholders are often marginalized in their attempts to benefit from the growing international trade in the products they grow. Integrating smallholders and especially coffee producers into global markets for their products implies an integrated process of rural development. This involves enhanced information flow and training to assess these markets and the tools (i.e. technology, infrastructure, and finance) to access these markets. Their ability to organize effectively into associations and cooperatives is the key factor for most to be able to take advantage of these benefits.

Building the institutional capacity of these organizations will be critical in order for them to properly manage their affairs, democratically represent their constituents, and utilize commercial, negotiating, and marketing skills. Government can partner with a number of institutions (international and domestic) that can deliver this training at the grass roots level. There are obvious crossover benefits of such strategies including rural finance, input purchase consolidation, marketing, democratic process, etc). These spillovers beyond any one sector and benefit rural areas as a whole.

Coffee has the distinct potential, as Colombia's leading agricultural sector, to demonstrate the methods and workable options available to farmers in other agricultural subsectors and in that way facilitate more advanced and remunerative agricultural development on other crops. This is particularly true since one of the necessary requirements to participate in more developed and more lucrative markets will be improved grades and standards. Indeed, it could be a future

liability to not instill this general mindset in the productive rural sector since standards for many agricultural products are fast becoming barriers to market entry for those who are not prepared (Giovannucci & Reardon, 1999; Giovannucci, 2000). Improved grades and standards can:

- Create a market niche or conversely prevent entry
- Differentiate products to earn a premium
- Assure the quality and reputation of products or organization (certification, seals, brands)
- Communicate product characteristics necessary for efficient transactions (quantity, authenticity, labeling, standard packing)
- Protect safety of consumers (labeling, phytosanitary requirements, pesticide standards)

Some of the differentiated markets i.e. organics provide many of the necessary training steps in establishing and maintaining international level standards such as field to consumer traceability, farm inputs accounting, and residue-free harvests. These skills and assets can help all farmers, including coffee growers, to be more competitive and to even consider diversification if they wish.

13. Managing transitions: options for diversification

Maintaining government subsidies for a long period is probably not a viable option. Given production costs and opportunities, it appears that small and some large producers are deemed to remain most viable while medium producers—some of them absentees— will be more likely to leave the business. Support or incentives to move to other alternatives will be costly. Any government diversification plan must look beyond coffee growers to other rural production systems as part of a more integrated strategy.

Options to escape from the bourse-based tyranny of commodity production fall under two main categories: differentiated production including higher quality as noted above and diversification.

A sharp decrease in annual crops⁴⁰ (i.e. rice, maize, potatoes, cotton and beans) and only modest increases in the hectares sown to permanent crops (i.e. bananas, oil palm, sugarcane, fruits but not coffee which declined) is part of a disturbing trend that includes increased imports and the switch to livestock which is typically characterized by low productivity and high environmental costs. This trend also implies that the present incentive structure fails to allocate resources efficiently and that low labor- intensity farming such as livestock has reduced the opportunities for both farm and non-farm employment in rural areas.

⁴⁰ Políticas y desempeño del Sector Agropecuario. Contraloría General de la República

Much of the expansion or shift noted above has not included smallholders and occurred primarily on larger landholdings suggesting difficulties for smallholders to diversify. Heath and Binswanger have noted that favoring extensive, large scale agriculture "...continues the disturbing trend of the past fifty years where the use of land and labor in Colombia has been driven in highly inefficient directions by a variety of agriculture sector, land and rural financial policies and sector programs..."⁴¹ Although many crops, which are exclusively associated with food security and smallholder agriculture, have remained stable according to FAO data, there has been little diversification into cash crops that could help balance the dependence on coffee.

According to the most recent data of the Encuesta Nacional Cafetera, the amount of land used for coffee farms has shrunk between 1970 in 1997 while the number of coffee farms has increased along with the average area per farm available for other agricultural products. Recent estimates (CIA 1999) show that the cultivation of coca was at 122,500 hectares, an estimated 20.3% increase over 1998.

In 1997 the total area of coffee growing farms amounted to 3.6 million hectares, of which 24% was dedicated to coffee, 5.42% to permanent crops such as sugar cane, cacao, plantain and others; 33.94% was dedicated to pasture land, 1.1% to commercial forests and 31.79% was uncultivated land. According to a 1988 survey⁴² 8% of coffee growing households' income depended on the sale of these other crops, while 21% of these crops, although having market value, was consumed by the same household (Junguito and Pizano 1991).

Although diversification is inherently complex and very location specific it can be used in different ways to improve and sometimes even stabilize farmer incomes (Barghouti, Timmer, Siegel 1990 & Barghouti, Garbas, Umali 1992). A diversification program for coffee growing areas must start by addressing particular farmer objectives defined according to local necessities (i.e. income diversification, improved food safety, promote planting of other more profitable coffee varieties, or any combination). It must then help farmers to assess these specific issues:

1. potential markets for different possible crops
2. risk
3. barriers to entry (investment costs, infrastructure requirements)
4. necessary skills and resources (i.e. information, technical capacity, financing)
5. environmental and economic advantages for production
6. challenges pertaining to commercialization (i.e. logistics, quality, quantity)

In the past many diversification initiatives have faced critical and sometimes insurmountable bottlenecks in these aspects. Farmer-centered research and extension is perhaps even more important for small farmer adoption of appropriate sustainable farming methods than the correct

⁴¹ Drawing from Heath, John and Hans Binswanger. Natural Resource Degradation effects of poverty and population growth are largely policy-induced: the case of Colombia.. Environment and Development Economics. World Bank. Conveyed in personal communication from M. McMahon.

⁴² Unpublished survey of production structure of coffee farms. Federacafé, División de Planeación 1988.

macro-policies according to extensive case studies of agro-ecological farming in different countries (Altieri and Uphoff, 1999).

Frankly, diversification is not easy, especially from a traditional and popular non-perishable cash crop like coffee.

The issue of how much coffee should be phased out will be determined by growers themselves responding to the market's messages and government's incentives. Unprofitable producers or inefficient production areas should not be subsidized. Furthermore, new niches with premium prices do not necessarily imply the phasing out of a part of the current production segments. Each coffee type (depending on quality, origin, organic or not, etc.) would have its own price, and the most appreciated coffees would get the highest premiums. It has been estimated that in the medium term it is possible to develop from current volumes of ½ million bags to about 1.5 million bags of niche market coffees (Micolta, 2002) such as single estate, fair trade, organic. Colombia already exports 2.5 million bags of high-quality “100% Colombian coffee” .

It is difficult to have the farmer assume all risks involved in the new crops. Incentives should exist for collaborative farmer-oriented research and analysis, technical and marketing assistance and to finance the setting up of production, but not for the production itself.

A form of diversification that recognizes that there is a limit to the income earning capacity of small plots of land is non-farm rural enterprise. Many useful services from machine repair to accounting to equipment rental can provide valuable services that support farm communities and make them more productive while reducing the inherent risk associated with farming.

A useful and successful experience in this sort of diversification initiatives are the *Talleres Rurales* in the Valle del Cauca, which grew out of women's cooperatives in several coffee growing areas in that department; these cooperatives manufacture and assemble different parts of garments for the national and international clothing industry; they are a source of employment and income for women members of coffee growing households of the area. The DCC of the NFCG played a very valuable role in this development. Recently they have received special support by a Spanish NGO which is financing the setting up of a new cooperative.

The Government's Role in Diversification

Market research: preferably through specialized organizations to help identify markets and study supply-demand options for agricultural products in short supply, be it for domestic or external markets i.e. Corporación Colombia Internacional (CCI) or Instituto Centroamericano de Administracion de Empresas (INCAE) new Centro de Inteligencia Sobre Mercados Sostenibles (CIMS) based in Costa Rica.

Technical Assistance: designing appropriate integrated technical packages for products deemed promising (dealing with agronomic, environmental, sanitary problems, and quality requirements the farmer may face all in one packet). This can be done by international agencies such as IICA,

government agencies, such as Instituto Colombiano Agropecuario (ICA), or through national and regional universities and linked with private sector partnership. This could be carried out through the existing extension system or via privatized extension services managed and co-funded by local authorities (Uganda model), thus ensuring their active participation.

Commercialization and logistics: identification of bottlenecks (i.e. transport costs) and proposals for their solutions in order to drive investment that develop the necessary channels and facilities the efficient commercialization of agricultural products.

Credit Support: subsidized credit might be needed to finance the initial investments necessary for setting up different production and some modest scheme to support the individual producer's income temporarily during the unproductive phase; but these should be minimized and not unduly distort the necessary market-oriented rationale for diversifying.

Community Organizations: supporting producer as well as trade organizations which could take the lead in the above processes and provide necessary linkages to markets.

Existing plantations should be integrated into the new diversification scheme perhaps as core farms in outgrower with schemes or otherwise with modest support i.e. market research and technical assistance but not necessarily transitional income support.

In general, the initiative should feature:

- a) demand orientation
- b) voluntary participation
- c) some risks assumed by producers
- d) free information and technology access to interested producers

Resource allocation, in turn, should be based on:

- a) assessment of regional diversification potential
- b) ensuring that those most in need and with greater potential would have greater access to resources
- c) promoting the local economy and supporting households' income

Resources

The present support package (Documento CONPES and Annex 1) which has been negotiated between the NFCG and the central government has been defined mainly as a coffee support package intended to subsidize price and tree renewal. As many coffee producers will surely migrate to other agricultural activities—due to the crisis—the package could be redesigned to include the diversification program above mentioned.

Past Experiences in Diversification

Diversification efforts of the coffee growing areas have been promoted by the NFCG since 1963 up until 1999 when CORDICAFE⁴³, the last of them, was finally closed down. Throughout those years the Diversification Program emphasized either coffee substitution or coffee growers household income support as its goals, depending on what at the time was needed in terms of regulating coffee production.

According to a different evaluation of the diversification effort (Leibovich, Gómez and Reyes, 1993), the program was mostly a means of income support and was hardly effective in encouraging coffee substitution. At the time the stabilization policies of the FNC made coffee growing an attractive and secure activity when compared to the instability of many alternative crops. Today, those conditions have changed and diversification is more relevant than ever.

The main diversification instrument between 1963 and 1991 was credit. The program, with the help of a World Bank loan, financed Col\$ 110,687 million (in 1988 \$), 40% of which were disbursed between 1984-1989. Credit can better induce diversification if it takes into account agricultural seasonality. According to Leibovich et al, when evaluating this experience they concluded that repayment terms should be set according to the cash flow requirements of the crops being financed to make them more attractive and repayable.

The key finding of CRECE's review of diversification initiatives (1997), was that the most successful diversification enterprises were those initiated by the farmers themselves, as opposed to institutional programs led by entities like the NFCG. Most institutional efforts faced market and commercialization difficulties. One important bottleneck identified by them was the typically low educational level of beneficiaries thus limiting their capacity to adopt and lead new productive initiatives that were imported.

A broader review of agricultural diversification experiences in Latin America's Pacific Rim countries (Tabora 1992) notes that while countries pursued individual approaches and had dissimilar outcomes, some common themes and issues emerged:

- 1) *Technology Development versus Technology Transfer* – New agricultural enterprises need to be tested for adoption, cultural management, post-harvest handling, packaging, storage, etc. and may require site-specific technologies and techniques.
- 2) *Public versus Private Investments* - Both are needed, but might be targeted differently. Many foreign-owned companies helped expand the production and export of non-traditional vegetables, ornamentals, and fruits. However, it was found that there were typically only a few alternatives that were more profitable or enjoyed such extensive and accessible markets as the traditional commodities that were to be replaced. Public sector has their roles to provide the organizational support and linkages that facilitate and private sector's integration of small farmers and laborers

⁴³ Corporación para la Diversificación Cafetera

- 3) *Infrastructure Development* – Substantial crop diversification has often occurred near urban areas, ports, and in areas close to major export-farming activities (e.g., coffee farms). It is there that integration with pre-established services and facilities, can be more readily tapped without the additional burden of new investment. While such corridors or clusters can be efficient and competitive, there is a high-cost: marginalizing more remote rural areas and less commercialized farmers (the case for many coffee producers).
- 4) *Insufficient Expertise* – Even if the technology is available and appropriate and all the facilities and support services in place, there is still a need for human capital for managers and laborers in terms of skills mix and entrepreneurial capacity. The lack of training has been a major constraint, and clearly places the less educated small farmers at a disadvantage.
- 5) *Difficulties with the Export Market* – Export marketing is more complex than marketing domestically in terms of language, logistics, timeliness, and technical and cultural perspectives of doing business. Where efficient farmer organizations are not developed there exists a bias in favor of larger more commercially oriented farmers.
- 6) *Inadequate Financial Incentives* – New agricultural enterprises often require longer development periods, new facilities, and a trial period before becoming viable. This requires longer term financing and manageable seasonally-adjusted repayment rates.
- 7) *Sustainability of Diversification Initiatives* - There is a need for sustained diversification efforts, not just as short-term responses to crises. Successful sustained efforts have been directed by the private sector, though always fully supported in many ways by governments, even as political administrations changed. Diversification is a process not an emergency response.
- 8) *Attractive Business Climate* - New products may special incentives in their early stages particularly when it is necessary to attract outside investors. The best incentive may be a stable and predictable investment climate that is business friendly.

Diversification's Profile for the Future

Given that low educational levels can detrimentally affect the adoption of diversified production systems, it makes sense to first encourage development of crops with which coffee farmers are already familiar (sugar cane, plantain, cacao and others), and which in most cases can also supply domestic and local demand. One disadvantage of these traditional crops is the low income impact for the farmers. An increasingly popular form of diversification, especially among larger landowners is cattle. According to a considerable body of work at respected institutions⁴⁴, there are environmental and other disadvantages to this approach and it should therefore only be considered with great caution.

⁴⁴ Tropical Center for Agronomic Research and Investigation (CATIE), Instituto Nitlapán, The Research Center for Sustainable Livestock and Agriculture Production Systems (CIPAV)

New non traditional crops especially those where greater value can be added by farmers should be encouraged where the necessary conditions allow for it. In cases such as these, possible beneficiaries should have access to adequate market research, appropriate technical assistance, credit and solutions to obstacles in commercialization and logistics; also forms of community organizations should be encouraged to emerge around the new products so as to give them sustainability through time.

There is already a useful body of knowledge that should be utilized. Several possible diversification crops and their fixed and variable costs of production and post-harvest, and demand possibilities have been studied in the past by the NFCG's Diversification Program and CORDICAFE (the entity which replaced the Diversification Program). In the year 2000 Beatriz Marulanda re-evaluated several crops for 'Plan Colombia' as part of a NFCG proposal for diversification of coffee growing areas. The crops studied were Asparagus, Cacao, Rubber, Citrus Crops, and Avocado.

Diversification into Agro forestry shows great potential. According to Ministry of the Environment statistics for 1999, Colombian wood consumption amounts to 4-5 million cubic meters a year, 70% of which is supplied by natural forests and only 30% by commercial plantations. Thus a diversification program encouraging wood production in coffee growing areas is bound to decrease coffee dependence. This increasing forestation could also help to promote an environmentally friendly system of coffee production.

Diversification systems tend to wane in popularity when coffee prices are high but this does not mean that they can be disregarded at those times since they have long-term requirements and cannot be easily started and stopped. This points out the government's role in maintaining a longer-term perspective and helping stimulate increased diversification despite short-term price fluctuations in one or another of the commodities.

References

- Altieri, Miguel and Norman Uphoff. 1999. Conference Overview from Bellagio Conference on Sustainable Agriculture online at <http://ciifad.cornell.edu/ciifad/pdfs/BellagioEnglish.pdf>
- Barghouti, Shawki, Carol Timmer, and Paul Siegel. 1990. Rural Diversification: Lessons from East Asia. World Bank Technical Paper No. 117. The World Bank, Washington, D.C.
- Barghouti, Shawki, L. Garbas, D. Umali (eds.) 1992. Trends in Agricultural Diversification: Regional Perspectives. World Bank Technical Paper 180. The World Bank, Washington, D.C.
- Berry, R. Albert and William Cline. 1979. Agrarian Structure and Productivity in Developing Countries. Baltimore, Johns Hopkins University Press.
- Brizzi, Adolfo, Natalia Gomez, Matthew McMahon. Forthcoming 2002. Agriculture and Rural Development Policy Note. In Colombia Policy Notes. World Bank: Washington D.C.
- Cárdenas, Mauricio. 1997. La Tasa de Cambio Real en Colombia. Fedesarrollo, Bogotá.
- Charveriat, Celine. 2001. Bitter Coffee, How the Poor are Paying for the Slump in Coffee Prices. Oxfam, Oxford
- CIA Website Transnational Issues accessed July 2002 online at:
<http://www.cia.gov/cia/publications/factbook/index.html>
- Clavijo, Sergio, Carlos Felipe Jaramillo, José Leibovich. 1994. El negocio cafetero ante el mercado libre. Tercer Mundo Editores, Colombia
- Comisión de Ajuste de la Institucionalidad Cafetera (CAIC). 2002. El Café, Capital Social y Estratégico. Bogotá.
- Common Fund for Commodities, CABI, ICO/02 project as noted in P.S. Baker (ed.) Coffee Futures. 2001. The Commodities Press, Chinchina, Colombia.
- CRECE. 1997. Programa de Reestructuración y Desarrollo en Regiones Cafeteras de Colombia. Mimeo. Manizales, Colombia.
- CRECE. 2001. Cuantificación de los impactos micro y macroeconómicos y sociales de la crisis cafetera. Mimeo. Manizales, Colombia.
- de Royere, Alexandra and Rohit Deshpande. 2001. Cafe de Colombia. Harvard Business School Publishing, Boston.

- De Miguel Recalde José María. 2000. La calidad como factor de competitividad del café colombiano, in *Competitividad del Café Colombiano*. Memoria de la LXIV, Asamblea de la Asociación Nacional de exportadores de Café de Colombia, ASOEXPORT 2000
- Departamento Nacional de Estadísticas. 2000. Encuesta Nacional de Hogares. Bogotá
- Department of National Planning. 2001. Programa Familias en Acción. Informe final de la prueba piloto. Bogotá.
- Economist Intelligence Unit. 1989. Coffee to 1995. Special Report. The Economist, London
- Echavarría, J. J. March 2002. Exchange rate management and stabilization policies. Mimeo Bogota.
- Giovannucci, Daniele. 2002. Who Shall We Blame? The Politics of Coffee. *Tea and Coffee Trade Journal* 174 (1).
- Giovannucci, Daniele. 2001. Sustainable Coffee Survey of the North American Specialty Coffee Industry. Specialty Coffee Association of America. Long Beach, CA
- Giovannucci, D. 2000. Food Quality Issues: Understanding HACCP and Other Quality Management Techniques. In *The Guide to Developing Agricultural Markets and Agro-enterprises*. http://wbln0018.worldbank.org/essd/essd.nsf/Agroenterprise/agro_guide
- Giovannucci, D. and Thomas Reardon. 1999. Understanding Grades and Standards - and how to apply them. In *The Guide to Developing Agricultural Markets and Agro-enterprises*. http://wbln0018.worldbank.org/essd/essd.nsf/Agroenterprise/agro_guide
- Heath, John and Hans Binswanger. 1996. Natural Resource Degradation Effects of Poverty and Population Growth Are Largely Policy-Induced: the Case of Colombia. *Environment and Development Economics*. World Bank, Washington DC
- Hazell, Peter and Shenggen Fan. 2000. Balancing Regional Development Priorities to Achieve Sustainable and Equitable Agricultural Growth. In David R. Lee and Christopher B. Barrett (eds.) *Critical Tradeoffs: Agricultural Intensification, Economic Development and the Environment in Developing Countries*. London, CAB International.
- Hommel, Rudolf, J. Leibovich. 2001. Situación y perspectivas del sector agropecuario. Mimeo. Bogotá
- Johnson, Nancy L. and Vernon R. Ruttan. 1994. Why Are Farms So Small? *World Development*, 24: 691-706.
- Junguito, Roberto, Diego Pizano. 1991. Producción de café en Colombia. Fondo Cultural Cafetero. Fedesarrollo, Bogotá

- Lozano, Nancy. 2002. Colombia's Premium on Green Coffee Beans: A first approximation to the effects of ingredient branding. Research prepared at the request of the NFCG. Unpublished.
- Marulanda Consultores. 2000. Alianzas Productivas para la Paz. Departamento Nacional de Planeación, Bogotá.
- Marulanda Consultores. 2001. Situación y Perspectivas del Instituto de Fomento Industrial. IFI, Bogotá.
- McKinsey & Co. 2001. Foodservice 2010. International Food Distributors Association
- McIntire, J. and P. Varangis. 1999. Reforming Cote d'Ivoire's Cocoa Marketing and Pricing System. Policy Research Working Paper, No. 2081. The World Bank, Washington, D.C.
- Micolta, Eduardo. 2002. Programa de Mejoramiento de las Condiciones Económicas y Sociales a través del Proyecto de Producción de Cafés de Alta Calidad para los Pequeños Caficultores y Desplazados ubicados en la Zona Cafetera de Colombia. Mimeo. Bogotá
- Montenegro Santiago. 1999. One decade of external coffee shocks in Colombia:1975-1985, in Collier Paul and J.W. Gunning and Assoc. Oxford University Press, Vol 2: Latin America.
- Montenegro, Santiago (editor) .1997. Determinantes de la Tasa de Cambio Real en Colombia.Cede, Universidad de los Andes, Bogotá.
- Morisset, Jacques. 1998. Unfair Trade: Empirical Evidence from Commodity Markets Over the Past 25 Years. Policy Working Paper 1815. 1997. Published in the World Bank Economic Review.Vol 12, No. 3.
- NFCG. 1997. Encuesta Nacional Cafetera. NFCG, Bogotá
- Organic Trade Association. 2001 Manufacturers Market Survey. OTA, Greenfield, MA
- Pizano Diego. 2001. El café en la encrucijada. Alfaomega, Cambio, Bogotá
- Pizano Diego. 2002. El Sector Cafetero Colombiano:Anatomía, Evolución, Aspectos Institucionales y Recomendaciones de Política. Bogota. Unpublished paper.
- Pretty, Jules. 1998. The Living Land: Agriculture, Food and Community Regeneration in Rural Europe. London, Earthscan.
- Promar International. 2001. "When they're 64: Profiting from the baby boomer food consumer to 2010" quoted in Food Distribution Magazine Volume 42/No. 5 Oct 2001. p10.
- Tabora, Jr., P.C. 1992. Central America and South America's Pacific Rim Countries: Experience with Export Diversification. In Trends in Agricultural Diversification: Regional

Perspectives. Edited by S. Barghouti, L. Garbus, D. Umali. World Bank Technical Paper No. 180. The World Bank, Washington, D.C.

Thrupp, Lori Ann. 1998. Cultivating Diversity: Agrobiodiversity and Food Security. Washington: World Resources Institute, Washington D.C.

USDA. Dec 2001. Tropical Products: World Markets and Trade. USDA, Washington D.C.

U.S. National Coffee Association. 2001. Winter Drinking Survey. NCA, New York.

World Bank Agriculture and Natural Resources Department. 1995. AGR Dissemination Notes. No.6. World Bank, Washington.

Annex 1. Colombia's Coffee Sub-Sector Public Supports

As world coffee prices have continued decreasing, the tax take, both in relative and in absolute terms, decreased as well. In part as a result of this but also due to poor management, most of FNC's accumulated assets—the bank, the financial corporations, and others—were lost.

This meant that there were no resources left for the implementation of coffee policy. As a result, the Colombian government came to the rescue with an aid package, financed from the National Budget. For the first time in history the government began to pay a direct subsidy to coffee growers. The package of subsidies includes support to the internal coffee price, stimulating the renewals of coffee trees and refinancing credits. A summary follows.

1. A constant subsidy of COL\$30,000⁴⁵/carga⁴⁶. This means that the growers receive a price equivalent to world price plus that subsidy net of processing and transportation costs. The government announced that will maintain the subsidy for three years, with the expectation that world prices will sometime recover. The budget to finance the subsidy was COL\$31,300 mill. in 2001; and COL\$94,800 mill. in 2002 and 2003
2. A subsidy of COL\$12,000 mill. in 2001 and COL\$44,100 mill in 2002, to finance program to renew coffee trees in 140.000 has. This program is a follow up to that implemented by the NFCG during the last three years, when 210.00 coffee has. were renewed with its own resources.
3. A subsidy of COL\$44.000 mill. during 2002 to finance technical assistance. In the past, programs of this nature were financed with own resources.
4. A refinancing credit program for COL\$60,000 mill.
5. Participation of the NFCG in Plan Colombia. This amounts to COL\$60,000 mill. in social and economic investment programs.
6. COL\$7,500 mill. to finance joint research projects between Cenicafé (The research center of the NFCG) and other research centers on the exploitation of the biodiversity resource in coffee growing regions.
7. Other complementary programs, on rural education and housing whose main objective is to increase enrollment and generate employment opportunities in coffee growing zones.

⁴⁵ February 2002 Exchange rate: 1US\$=COL\$2,300

⁴⁶ Carga = 125 Kgs. If the international coffee price goes up higher than US\$0.80/lb. parchment, the subsidy disappears

Annex II. Nature and Characteristics of Differentiated Coffee Markets

Daniele P. Giovannucci⁴⁷

First and foremost, it should be noted that despite the impressive growth rates for these markets, they are still relatively small and can only accommodate a limited number of new entrants. With that caveat, their value may be greater for their externalities i.e. benefits to the producer such as improved natural resource management, lower risks, etc. than for their price premiums. They can therefore be a valuable part of competitive strategy, though not the entire strategy for a country with considerable production volume like Colombia.

Coffees from areas that are specifically demarcated and acknowledged as having distinct physical characteristics such as microclimate, soil composition, and plant varieties have successfully been marketed with their specific **Geographic Indications of Origin (GIO)**. Development of such programs, sometimes called appellations, creates the mechanisms for permanent structural change built on a new agronomic model, similar to the wine industry. Much like the wine industry, this permits a unique competitive advantage and, if properly marketed, can result in stronger demand and higher prices that may be somewhat more immune to market fluctuations than commodity products. Despite recent setbacks in seeking legal protection for GIO in the United States, this differentiation strategy has been successful for many regions, among the most notable being Jamaican Blue Mountain, Hawaiian Kona, and Guatemala Antigua whose popularity have spurred reports of global sales far greater than their actual production volumes. This implies that such initiatives on the part of producing countries will also require investment in monitoring and enforcement.

Specialty coffee, sometimes used interchangeably with “gourmet” coffee although the former more commonly refers to a larger set of coffees including flavored, espresso-based, sustainable coffees (see below), and cold preparations. Gourmet used to refer strictly to higher quality coffees sold, often as whole beans, in dedicated coffee stores or cafes. Although this term still suggests a degree of exclusivity, such coffees have actually penetrated most marketing channels and are available now even through mass merchants and supermarkets. Market trends suggest that there is room for such expansion given that there is increasing differentiation, especially in price and considerable growth in sales and profits. The market expansion for specialty coffees, led by high visibility brands like Starbucks, has been significant in the U.S. markets and is now spreading back to Europe where the café concept originated and specialty coffees have long held a considerable market share.

⁴⁷ Extracted with permission from: How Markets Influence Poverty and the Environment: The Transformative Power of Coffee. Daniele Giovannucci, ed. Forthcoming.

In the U.S., where coffee imports account for ¼ of global totals, the specialty coffee industry accounts for approximately 17% of the total volume yet its \$7.8 billion in sales represent approximately 40% of the \$18.5 billion U.S. coffee market's total revenue⁴⁸ and an even greater percentage of its profits. It is the only segment of the coffee industry that has shown consistent and notable growth⁴⁹. According to the International Coffee Organization (ICO) and the SCAA, most potential specialty coffee markets are far from saturated and sales continue to expand by 5% to 10% per year according to the most conservative estimates⁵⁰.

The **sustainable** coffees: organic, fair trade and shade grown are predominantly produced by small farmers and characterized as paying farmers reasonable prices, providing incentives toward organic production and rewarding farmers for practicing good natural resource stewardship⁵¹. They tend to promote water conservation and protection, energy conservation, recycling, and even community/cooperative development. Until recently their scarce presence in the marketplace caused some confusion about what they each actually represent. Now with both clear definitions (see below) and international certification standards it is incumbent upon the coffee industry and regulatory bodies to help educate consumers and ensure that coffees using these labels are indeed certified by an independent third party. Failure to do so will cost the industry a valuable means of differentiation and the resulting erosion of consumer confidence will render the terms meaningless and therefore remove a valuable tool from the repertoire of the small coffee producer who can least afford such a loss.

Organic coffees incorporate management practices to conserve or enhance soil structure, resilience, and fertility by using cultivation practices and only non-synthetic nutrients and plant protection methods. Organic certification is also required of the processor and roaster in order to be sold as such. Organic coffees have been on the market for several decades⁵² but broad appeal and volume sales have only occurred since the late 1980s. In United States average annual growth rates of approximately 12% for organic coffee have been strong over the last five years and are expected to continue solid growth, albeit less strongly.⁵³ North American consumption (predominantly U.S.) is estimated at approximately 6 million kg but growing with 13% of the consumers who are regular drinkers of specialty or gourmet coffee – that's 8 million people - purchasing organic coffee at least once⁵⁴. The EU consumes even more⁵⁵, than the U.S. led by Sweden, Germany, the Netherlands, and Denmark⁵⁶. Premiums paid to the producers average US\$.33 per kilo and are often higher based on quality⁵⁷.

⁴⁸ SCAA Coffee Market Size 2000. SCAA 1999 Coffee Market Summary. ICO Production Statistics 2000/2001. ICO US market estimates do not take into account retail value and volume of coffee beverages in the food service segment.

⁴⁹ National Coffee Association (NCA) estimates average annual growth of about 30% in last five years.

⁵⁰ Specialty Coffee Assn. Estimates (T. Lingle). Annual Coffee Report 1998. 1999 International Coffee Organization (ICO). May 2000 ICO updates.

⁵¹ Partly adapted from Conservation Principles for Coffee Production. www.consumerscouncil.org

⁵² First recorded certification is Finca Irlanda in Chiapas, Mexico (Demeter biodynamic).

⁵³ 2001 Manufacturers Market Survey. Organic Trade Association. Greenfield, MA

⁵⁴ U.S. National Coffee Association. 2001 Winter Drinking Survey.

⁵⁵ Initial reports from large EU study to measure volume and trends that is currently underway.

⁵⁶ EU estimates vary and recent estimates run as high as 13.7 million kg

⁵⁷ Based on NY "C" price for arabica, Robusta prices are lower. One European report claims to have found premiums of as much as US\$1.50 per kilo

Fair trade coffee is purchased directly from internationally registered and certified cooperatives of small farmers that are guaranteed a minimum and consistent contract price as well as access to some credit from the purchaser if necessary. Fair trade encourages community driven investment in public goods like education, healthcare, and infrastructure. The Fair trade market sets a minimum price currently US \$1.26 for washed arabica and US. \$1.41 if organic. The price benefit is particularly noticeable during low price markets. arabica farmers averaged superior prices of US\$.64/kg in 1999 and US\$.95/kg in 2000⁵⁸. In 2000 14.4 million kg certified Fair Trade coffee was imported from 22 producer countries led by (in volume order) Mexico, Peru, Colombia, Nicaragua, and Guatemala. Nearly 40% of this coffee is also certified organic. Approximately 2.1 million kg went to North America and most of the rest to the EU. Netherlands, Germany, UK, and Switzerland are the largest consumers. This category has shown steady but erratic growth with the European markets being more mature and the U.S. growing dramatically in the last three years posting imports of ca. 3.6 million kg in 2001.

Shade or Eco-friendly coffee production systems maintain and enhance wildlife habitat and biological diversity particularly through effective management of the forest canopy on the farm and protection or restoration of surrounding natural environments. Globally more than 3 million kg of Eco-friendly coffee were certified in 2000-2001, the bulk of this is in Guatemala and El Salvador. This nascent market has yet to prove itself but has already seen success in select markets, mostly in the North America. Estimates for year 2000 sales of certified Shade grown coffee are approximately 1/2 million kg although much more was sold uncertified. Premiums paid to producers vary and have ranged from US\$.04/kg to US\$.22/kg

Although there is certainly room for growth in all of these differentiated markets, as competition builds evidence clearly indicates that cup quality will be critical. See Chart 12. Here, Colombia has a distinct advantage due to its historic focus on quality and the mechanisms to foster it.

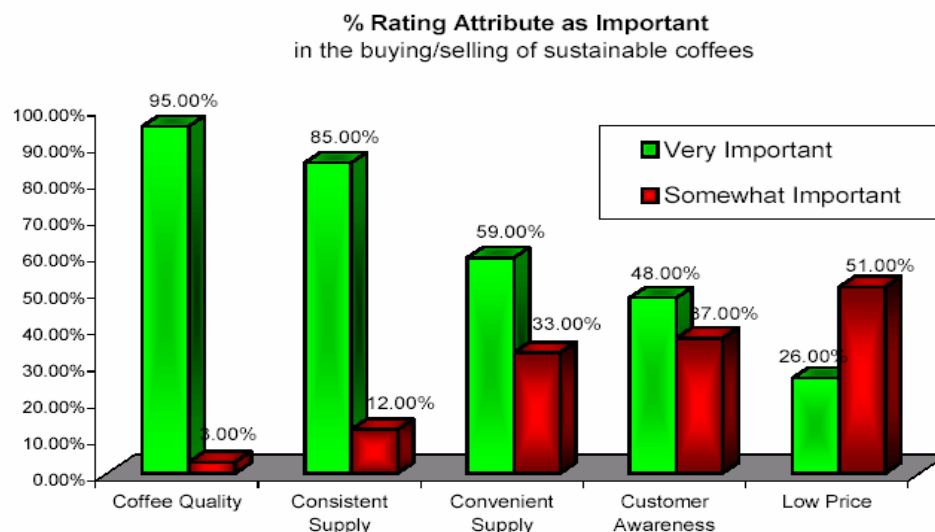


Chart 12. Source: Daniele Giovannucci 2001.

⁵⁸ Difference between average annual market prices and FT contract prices. Robusta figures are lower. Source: FLO