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**GARDENING GUATEMALA:
THE INFLUENCE OF EXPORT VEGETABLES ON LAND AND
LABOUR RELATIONS IN THE MAYAN HIGHLANDS**

BY

Bruce Goodman, B.A.

**A thesis submitted to
the Faculty of Graduate Studies and Research
in partial fulfilment of
the requirements for the degree of**

Master of Arts

Department of Geography

**Carleton University
Ottawa, Canada
September 8, 1992**

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The Influence of Export Vegetables on Land and
Labour Relations in the Mayan Highlands

Submitted by
Bruce Goodman, B.A (Hons)

in partial fulfilment of the requirements for
the degree of Masters of Arts

Thesis Supervisor

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September 25, 1992

ABSTRACT

Export vegetables are being promoted in the heart of Guatemala's small-farm highlands by international financial institutions as a means of increasing employment, increasing incomes, and curbing the region's high rate of malnutrition. However, few small-farm vegetable producers can boast of having reached these targets. After presenting arguments both for and against such a strategy, this thesis disproves the optimism by means of a two-pronged analysis focused on the household-level performance and the Guatemalan socio-political context. This approach illustrates both the technical and political obstacles facing the majority of small farmers who aspire to produce export vegetables on their tiny highland plots. Produce markets are highly complex mechanisms and small farmers have little chance when competing with larger farmers for land, technology and consumer market access. Although the growing of vegetables is often promoted in terms of giving small farmers greater control over their land and labour -- a contentious issue in this country given that both have been historically appropriated and exploited by a small minority -- evidence presented in the following pages suggests that producing such technology-intensive crops may actually further weaken peasant control over their resources and further restrict their ability to procure adequate subsistence needs.

For Beverley

PREFACE

In the 1980s, private-sector and government-sponsored efforts culminated with the inception of a broad strategy aimed at raising rural incomes in Guatemala by encouraging small farmers to devote substantial parts of their subsistence land to high-value vegetable crops. Optimists have dubbed this Guatemala's "Blue Revolution," a phrase that reflects the rapid expansion of bluish-green broccoli, among other crops, throughout the western highlands of Guatemala. Ironically, Mayan Indian growers, the largest highland ethnic group, are producing a crop that many "...can't even pronounce" (Kusterer, 1981:19).

As the major catalysts behind the promotion of vegetable production, the Guatemalan state and their major bilateral contributor, the United States Agency for International Development (USAID), have argued that intensive horticulture makes more efficient use of small farmer land and labour than the traditional *milpa* system. This results, according to USAID, in higher small farm incomes and increased employment opportunities. Yet this proliferation of export crops in rural Guatemala has given rise to much scepticism. Vegetable crops, like other agro-exports, even when grown on small scales, are such that the production and marketing processes characteristically evolve beyond the control of

small farmers and into the hands of medium and large landowners. Sheldon Annis, senior research associate of the Overseas Development Council, testifying before the US House of Representatives' Committee on Hunger, stated that increasing poverty in Central America is the direct result of (USAID) non-traditional export policy. Among other threats, Annis claimed that the rising cost of land increases landlessness while decreasing subsistence farming and smallholding (TWR, 1/92).

The results of an independent analysis by the International Food Policy Research Institute (IFPRI, 1989), however, have challenged the assumption that vegetable crops are biased in favour of large land-holders. The IFPRI team recorded improvements in many household socio-economic indicators in a case study of a small-farm vegetable cooperative in Guatemala's highlands. USAID-sponsored consultant reports and project updates have corroborated these findings, recording high degrees of donor and beneficiary satisfaction with the highland vegetable program (Kusterer et al., 1981; Kraljevic, 1989). The external perception of Guatemala's highland agricultural transformation has been quite enthusiastic, to the extent of being extolled as an exemplary process of "redistribution-through-private-markets" that should be emulated in the fiscally constrained Latin America of the 1990s (Janssen and Sanint, 1991:478).

The relationship between export crops and small farmers in Guatemala's highlands quite clearly deserves further investigation.

The research presented in this thesis would not have been possible were it not for the contributions of many groups and individuals. First and foremost, I thank the ingeniero Sanabria and all the members of the Magdalena cooperative and their respective households who generously collaborated with me, putting time aside to respond to my rather lengthy questionnaires. The Centro de Investigaciones Regionales de Mesoamerica (CIRMA) deserves thanks and praise for providing a most tranquil and inspiring working environment, complete with all the facilities necessary for fruitful academic pursuit. Helen Ramires, of the Instituto de Nutrición de Centro America y Panama (INCAP), graciously commented on several drafts of my women's questionnaire. I am also indebted, surprisingly enough given my conclusions, to the USAID mission to Guatemala. Mission officials cheerfully answered my questions and granted me access to their libraries, internal documents and consultants' reports. Gary Smith in particular, USAID's agricultural information "guru," not only gave me helpful advice concerning questionnaire design and many insights on USAID policy, but also, as fate would have it, did much of my photocopying for me.

Iain Wallace should be commended for both his balanced advice and over 6 years of academic inspiration. Special thanks also to my under-paid labour assistants: Ana-Jo Castañeda for her meticulous and efficient surveying; Robert Drysdale and John Goodman for their editing; Jocelyne Dubois for graphics; and Dominique Myre for her editing, word processing and for sharing my stress. Although all of the above contributed, I alone accept full responsibility for the conclusions and interpretations contained herein.

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CHAPTER 1: INTRODUCTION

The diminishing size of highland small-farm plots, together with the gradual penetration of capitalist relations yet with insufficient employment creation resulting therefrom, is restricting the survival options of the highland inhabitants, the majority of whom are descendants of the Mayas. Subsistence in isolation, a successful nineteenth century tactic for cultural and biophysical survival, is no longer possible given these new conditions. In the late 1980s and early 1990s, a nation-wide economic decline, including the failure of plantation work to provide acceptable and ample seasonal wage opportunities, further depressed the rural economy, creating an increasingly indigent and desperate population.

A major government\USAID-sponsored attempt to alleviate the effects of the rural dilemma has involved the promotion of export vegetables¹ in the highlands. To profit from this new agricultural opportunity, small farmers have been encouraged to organize themselves in one of two ways. The first option

¹ Unless otherwise indicated, "export vegetables," "non-traditional vegetables," "cold-weather vegetables" and "temperate-climate vegetables" are interchangeable terms used to describe vegetables whose ideal growing conditions are found within a temperate climate. They have an implicit destination, the United States and Europe, and are therefore distinct from vegetables grown for consumption, locally marketed vegetables and even vegetables exported to other Central American countries.

is to become contract farmers growing "raw material" for agro-industries. The second option, building on the experience gained from contract farming, is to directly export semi-processed vegetables through a cooperative's own market channel. In practice, many cooperatives and associations, especially those examined here, rely on combinations of both marketing channels.

Guatemala's highland agricultural transformation was originally motivated and justified by the experience of a U.S. transnational, Alimentos Congelados Monte Bello (ALCOSA), whose contract farming operations with small farmers blossomed in the early 1980s. Additional support for USAID's projects was found in a 1989 case study of the Quatro Pinos cooperative by the International Food Policy Research Institute (IFPRI). Contract farming and a number of other fortuitous circumstances allowed Quatro Pinos to develop its own export channels and to become an agricultural enterprise in itself. The IFPRI team concluded that the cooperative had improved community welfare by increasing incomes; improving yields of both subsistence and export crops; increasing labour creation (both family and hired); and, although weakly correlated, increasing family calorie consumption in proportion to income increases. Furthermore, the authors argued that the diseconomies to scale of vegetable production ensured that these export

crops -- and their benefits -- ended up on the smallest farms in one of the poorest regions of the country.

USAID has had a tendency to generalize from the particular case of Quatro Pinos. The success of this, and other prospective cooperatives, has confirmed two long-standing USAID suppositions: first, modernized minifundios (small farms) can provide living incomes and thereby increase the health and welfare of their owners while creating gainful employment for the landless. Small farmers are expected to disprove certain "neo-Malthusian" arguments,² espoused by USAID itself in a 1982 study,³ which predict a looming crisis in the highland due to land shortages. Malthus and his contemporaries, assert officials at USAID, fail to see that a shrinking land base is not a threat to production because technological inputs, such as irrigation and agro-chemicals, multiply possible yields.

² For a recent estimate of world population growth rates and the necessary additional amounts of arable land needed to satisfy food requirements, see Warnock (1987:302-303).

³ Land and Labour in Guatemala: An Assessment (1982) was published at a time when USAID was advocating land reform in both Guatemala and El Salvador to counter the pressure generated by the Sandinista government's land reform in Nicaragua. It was conceived as a means of addressing short-term political crises rather than deep-seated structural problems and deviated markedly from USAID policies in the isthmus, the majority of which reflected USAID's abandonment of land reform in the 1970s.

The second affirmation gleaned from the experience of Quatro Pinos is that an *entente* could be reached between the hostile agricultural\industrial bourgeoisie and the highland *campesino*.⁴ More importantly, this agreement was based on economic measures, not a complicated, or as history has shown near-impossible, political compromise. Exporting vegetables, especially under contract arrangements, called for mutual dependence of these former antagonists. The power of *campesinos* was guaranteed by the fact that they occupied a distinctive niche in the production process.

The clear limits to the transferability of the Quatro Pinos example to other small-farm groups was the original source of motivation for this present research endeavour. Quatro Pinos had been described by its advocates as "...an exceptional case of agricultural and rural development ... not typical in Guatemala" (Braun et al., 1989:90). To emulate Quatro Pinos, Guatemala's highland smallholders require access to capital and business expertise, protection from market fluctuations, and increases in their incomes in proportion to escalating input prices. These pro-smallholder projects must also have the sanction of the government, or

⁴ Carol Smith (1988:210) maintains that most rural Guatemalans consider *campesino* to signify a status, not primarily an occupation as its literal translation to "peasant" would have us believe. The status refers to a person who is a rural dweller, relatively powerless, and relatively poor, as well as a person who does some farming.

those who control national decision-making structures, defined here as the "ruling coalition." Few of these prerequisites are readily available to highland farmers.

1.1 THE RESEARCH DEFINITION

1.1.1 HYPOTHESIS

The hypothesis of this research is that Guatemala's present vegetable export strategy will raise farm incomes of a fraction of smallholders through greater productivity, most of whom are located adjacent to the urban periphery. At the same time, the strategy will further raise the expectations and ultimately frustrate the majority of farmers located in the western highlands. Furthermore, the small percentage of farmers that manage to improve the efficiency of their land and labour will notwithstanding be taxed by the same forces that prevent the majority of small farmers from overcoming production obstacles: unstable international markets; limited international assistance in the form of loans, grants, and technology transfers; low education levels; a weak national cooperative movement; and, finally, an intransigent ruling class that far from encouraging independent peasant endeavour will attempt to monopolize all production and marketing stages of this growing export opportunity as it has in the past, especially given the weak demand for Guatemala's traditional exports.

1.1.2 SOURCES OF DATA

The research approach for this thesis has relied on numerous sources of primary data: an in-depth field survey; internal USAID and Swiss Aid surveys and project evaluations; archival research; over 55 interviews with key informants; and informal discussions with government officials, cooperative managers, non-government organizations, social research bodies, university professors and students, peasant leaders and groups, international aid agencies, agricultural and cooperative institutes, export associations, municipalities and agricultural schools. The field work in Guatemala was carried out in the period between October 1989 and April 1990.

1.1.3 METHODOLOGY

This thesis is organized to meet its objectives through an historical analysis, an evaluation of USAID methodology and institutional practice and its influence on cooperativism in Guatemala, and, finally, a case study of a highland community cooperative that has been growing and exporting vegetables for nearly a decade. The historical analysis traces the progressive narrowing of economic opportunities for highland dwellers. It suggests that rural production and commercialization dilemmas cannot be divorced from Guatemala's socio-economic context. This structure obstructs reformism while creating and sustaining rural poverty.

USAID's justifications for the development of export vegetables in the Guatemalan highlands are evaluated using USAID-sponsored studies and internal project reports, as well as other critical literature. The foundation of USAID's argument will be explored by contrasting the Quatro Pinos findings with the experience of another small-farm cooperative located in Magdalena Milpas Altas. To this end, evidence was gathered through observation in the community and an intra-household questionnaire which was administered to male and female household heads with the objective of examining the effects of a shift from maize and bean cultivation to vegetable production (see Appendices A and B).

The survey, although based on a small sample size, focused on some of the households' benefits that USAID and IFPRI claimed were gained by cultivating export vegetables. These include a more efficient use of highland labour (as measured by the quality of work and numbers of additional labourers required compared to maize and bean farmers); an increase in incomes vis-à-vis those who grow maize and beans; and the inclination of vegetable growers to increase their basic grain yields relative to maize and bean farmers, thus mitigating concern for potential threats to food security. The survey data also addressed processes of land concentration, pesticide issues, and market instability. Due

to resource constraints the nutritional repercussions, a key aspect of IFPRI's survey design, have been omitted. The results corroborate some of the benefits to small farmers found in Quatro Pinos, but also set some limits to the likelihood of this fortunate case being emulated across the highlands.

1.1.4 THE CASE STUDY

Magdalena Milpas Altas' Cooperativa Agrícola (CoAg) was selected as the case study because it was one of the few of the nine cooperatives visited which had been able to get beyond production and marketing constraints to a point where members exported produce on their own behalf. While being clearly exceptional in its own right, Magdalena's cooperative was complex enough to invite a suitable degree of research depth and test many of the USAID and IFPRI assumptions. Most of the other cooperatives encountered were either indebted, disorganized, or impoverished. The long search for the case study was not in vain, however, for invaluable qualitative information was gathered from a diverse group of highland farmers and cooperatives, giving this work a basis from which to make some comparisons and cautious generalizations.

This thesis aspires to shed some light on some very complicated and inter-related social, political, cultural

and economic phenomena. For this reason, substantial effort is made to build a case employing the obvious and confirmed, rather than high levels of economic abstraction. The export vegetable scheme has not been introduced into an environment where only economic incentives influence economic actors. The lack of any other means of survival engenders a certain desperation, for example, that is considered as important a motivating force as market prices. The Mayan cultural lens through which much of the external stimuli are interpreted is not easily assessed by outsiders, and for this reason it is only referred to in general terms. The survey measurements will be expressed as descriptive statistics, mainly in the form of tables and graphs.

1.1.5 CHAPTER ORGANIZATION

The remainder of this chapter provides a brief introduction to the nature of political and economic power in Guatemala. This is followed by some of the broader geographical aspects of vegetable production and an examination of the controversy that has been inspired by the growth of export production in the Mayan highlands. Chapter 2 outlines the historical forces that have encouraged the rapid agricultural transformation of the western highlands since the mid-1800s. Attention is focused on the relationship between the largely indigenous group of highland farmers and

their struggle over the control of their land and labour with the state\entrepreneur power brokers.

Chapter 3, based to a large degree on USAID publications and numerous interviews, traces the beginnings of Guatemalan vegetable exports through to the "packaging" of horticulture exports as a strategy to raise small farmers out of their poverty. USAID's expectations are compared and contrasted with the experience of small-farm cooperatives. Chapter 4, the case study, begins with a brief description of the most pertinent features of *Cooperativa Agrícola's* administrative and managerial structures. The particular relationships that the survey sought to test are then discussed at length. The concluding chapter will draw some conclusions regarding the circumstances surrounding export vegetable expansion and the implications for the future of the small highland farmer in Guatemala.

1.2 RULING COALITION AND POLITICS IN THE 1980s

Since 1954,⁵ political power in Guatemala has been increasingly dominated by what Susanne Jonas (1991:87-94) refers to as the "ruling coalition," or the partnership

⁵ The year 1954 is used as a bench-mark because it was the year in which a Central Intelligence Agency-backed counter-revolution toppled a reformist administration. In the aftermath, the U.S. government vowed to make Guatemala a showplace of capitalist development (Handy, 1984:185).

between the oligarchical⁶ bourgeoisie and the military.⁷ Although much has been said about the autonomous field of action of the latter group, much more clarity is gained by recognizing that both maintain a necessary reliance on one another to govern the country.⁸ Their individual and collective roles in Guatemala's political economy in the 1980s are discussed below.

One of the most distinct characteristics of Guatemala's oligarchy is its unification and its single-mindedness. This is due in large part to an ability to mediate and resolve intra-bourgeois conflicts, which occasionally arise between, for example, importers favouring low tariffs and local

⁶ The oligarchy refers to Guatemala's primarily agrarian elite who have amassed their wealth under monopolistic conditions. The violent extraction of surplus from *campesino* or semi-proletarian labour is implicit to this system based on extra-economic coercion (Torres Rivas, 1989:48). Jorge Casteñada, of the National Indian Institute, has also captured certain oligarchic characteristics of the agro-elite. He claimed that they have a colonial, not capitalist, mentality, often paying the lowest wage possible while infrequently risking capital (quoted in Handy, 1984:201).

⁷ Through joint ventures, with only symbolic Guatemalan participation, foreign capital has often functioned as part of the ruling coalition (Jonas citing Torres Rivas, 1991:89).

⁸ This is not always an amicable accommodation. Black (1984:170-171), for example, points out that although there were few fundamental conflicts of economic objectives, the economically-powerful Chamber of Agriculture, Commercial, Industrial and Financial Institutions (CACIF) often deplored the high-handed means used by the Ríos Montt government in 1982-83 to achieve the agreed-upon results.

producers favouring protectionism.⁹ The bourgeoisie is not one dominant faction with investments in a particular economic sphere but rather the totality of dominant factions with investments distributed throughout agriculture, industry, trade and finance, and a substantial degree of integration with transnational capital (Jonas, 1991:88).

New economic opportunities, such as the Central American Common market (CACM)-stimulated industrialization in the 1960s, did not disrupt or threaten the interests of the traditional agro-elites as these new endeavours were subsumed by the same ruling families. In addition, the neoliberal sectors that emerged from the economic diversification of the 1970s and 1980s -- which could have potentially challenged the dominance of the existing elites -- were also harmoniously integrated. Although these neo-liberal directors, managers, and high-level technicians had a "modernizing" vision (influenced and in most cases funded by USAID, which prioritized the elimination of state intervention and raising worker productivity, see Chapter 3), they in no way came into conflict with the traditional ruling elite. The neo-liberal elite modernized their techniques but, like the oligarchy which preceded them, not

⁹ This unusual degree of cooperation has been attributed to the lingering trauma associated with the 1944-1954 revolution and the continuing threat resulting from 30 years of insurgency and counter-insurgency war since 1960 (Jonas, 1991:92).

their view of Guatemalan society. Like the traditional ruling elite, they opposed tax reform¹⁰ and changes in the social system (Jonas, 1991:90-91).

United and free of any fragmentation, Guatemala's bourgeoisie has retained much of its oligarchical character. It has become more intransigent and less reformist than the other bourgeoisies in Central America. This rigidity is, in part, based on having the most highly concentrated, completely unreformed tenure system in Latin America.¹¹ It also stems from the racist attitudes towards the Indian majority, which has been the foundation of the nation's coercive labour system for centuries. The U.S. influence during the Cold War, funding counterinsurgency activities and political manipulation, strengthened these attitudes (Jonas, 1991:88). Foreign capital, mostly U.S., also reinforced these tendencies by discouraging reformism (Dunkerley, 1988:464).

¹⁰ Guatemala's tax system is extremely regressive. The private sector has a long history of spirited resistance to tax increases on business practices. Between 1980 and 1986, tax revenue from the private sector actually declined (Jonas, 1991:81).

¹¹ Land distribution in Guatemala is one of the most skewed in Latin America. USAID calculates that 2% of farm units comprise 65% of arable farmland, whereas 78% of farms comprise 10% of farmland (USAID, 1982).

The armed forces, the other significant partner in Guatemala's ruling coalition, nominally controlled Guatemala's state apparatus from 1954 to 1986. The single civilian president to emerge during this extended period of direct military rule -- Julio César Méndez Montenegro (1966-1970) -- was guided by the dictates of the military and its conservative allies. Since the beginning of Guatemala's civil war in the 1960s, the military institution has rationalized its existence as mainly a counterinsurgency and stabilizing force. Among the duties carried out by the army are defending the interests of the bourgeoisie, defeating all those who challenge the status quo, and controlling the civilian population and their organizations through coercion.

The objectives of the military are not necessarily undertaken through direct occupation of the state bureaucracy.¹² This is well illustrated by the shift in military tactics and political strategies that eventually led to the election in January 1986 of the first civilian president since 1970, Marco Vinicio Cerezo Arévalo and the Christian Democratic Party. The change in military direction was motivated by the dwindling counterinsurgency war in the early 1980s. The war and its atrocities peaked at a time

¹² For an examination of the differences between the conventional military dictatorship and the counterinsurgency state, see Jonas (1991:116-120).

when entire towns in the Indian highlands were known to have joined the guerrilla movement. General Romeo Lucas García, despite his grisly tactics which included killing 10,000 civilians¹³ (Handy, 1984:180-183), was unable to control the pace of the war against the popular forces or the competing desires of sectors of his army. He was ousted in 1982 by a group of dissident officers led by General Efraín Ríos Montt who vowed to alter the path of the counterinsurgency. The Ríos Montt government initiated a process of incorporating a developmentalist and nation-building side to the military efforts.¹⁴

Montt's vision, outlined in the National Security and Development Plan (PNSD),¹⁵ set the guidelines for the evolution of government in the 1980s (Barry, 1989:7-10). It established politics as an extension of war, and the government as an instrument of a national-stability project as defined by the military. This was tacit recognition that a civilian government could legitimize the national

¹³ There is much literature that deals with the causes and consequences of Guatemala's structural system of human rights abuses, for example see Black et al. (1984); Manz (1988a); Painter (1987).

¹⁴ While he continued Lucas García's scorched earth tactics, Stoll (1991:5) argues that to see Ríos Montt as simply a human-rights abuser, and not a reformer, obscures many important political subtleties.

¹⁵ The pertinent parts of this document are reprinted in the appendices of Black et al. (1984:177-180).

governing structure on local and international levels, pull the nation out of recession and address the severe poverty of the rural population. The military could then concentrate on defeating the armed opposition through the more precise and sophisticated use of incentives and repression.

Before the Cerezo government came to power, a number of concessions were given to the ruling coalition. The oligarchy demanded and received an amendment to the 1985 constitution that eliminated the reference in previous constitutions to the "social function of property." This reduced the pressure to alter the country's unequal land tenure relations. Throughout Cerezo's administration, Guatemala continued to be the only Central American country not to have adopted any land redistribution law. The military also achieved its principal demands of prosecution amnesty for human rights abusers within its ranks and dominion over rural areas, especially in regions where its counterinsurgency were taking place. As was expected, the Christian Democrats failed to build popular support for the government and distance themselves from the ruling coalition. Cerezo defended his government on numerous occasions stating that the military, and he should have included the oligarchy, gave him limited space for political

manoeuvring.¹⁶

Cerezo's policy of *concertación* (consensus), his chosen gradualist approach to achieving national reconciliation through economic and social policies, was not successful. Cerezo and some sectors of the military (led by his Defense Minister, Héctor Gramajo) recognized the need to address the basic needs of the poor majority to maintain national stability. They labelled this the "social debt," which could be adequately dealt with, they envisioned, through internationally financed government social service programs (not structural reform). The oligarchy, feeling its interests threatened, objected to these measures on the grounds of what it called public-sector inefficiency and "socialistic" tendencies (Barry, 1989:12).

When congressional politics (and intimidation tactics) failed, the ruling coalition demonstrated opposition in other ways. In bold displays of force, government attempts to establish political openings for the popular sector and the armed and exiled opposition were met with a number of coup attempts (May 1988, August 1988 and May 1989) designed to be negotiating strategies. Through these measures, hard-

¹⁶ Critics nonetheless slight Cerezo's half-hearted approach, suggesting that he should have been more opportunistic immediately after his election when the ruling coalition had much invested in the new "democratic" opening (for example, see Jonas, 1991).

line officers and their right-wing economic allies were able to prevent the government from moving in any progressive direction (CERIGUA-MG, June-July 1988; Barry, 1989:37-47).

In the years that followed, government policy made no pretense of defending the interests of the poor majority. It came to reflect the economics of austerity and price liberalization, exclusively serving the needs of the private-sector elite through CACIF, the traditional oligarchic voice. Cerezo was quoted as saying, "The economic interests of the dominant classes will now be the main and only driving force behind the state's activity", (CERIGUA-MG citing Inforpress, June-July 1988:4). The business sector was thus successful in maintaining its long-standing resistance to even the smallest concessions to carry out minimal reform (Rossdeutscher, 1988:2). The Cerezo administration ended its five-year term in 1991 having kept few of its promises. Surviving its full term seemed to be its single accomplishment.¹⁷ The reins of nominal government power were handed over to Jorge Serrano, a rightist neo-liberal who won an election in which over 70 percent of eligible voters abstained (Jonas, 1991:228-229).

¹⁷ Héctor Alejandro Gramajo, Cerezo's minister of defense and a key architect of the army's state-stability model, was quoted shortly before retirement as saying that "his mission" -- to keep Cerezo from being overthrown -- was now complete (Crónica, 12\1\90).

1.3 GUATEMALA'S POST-1954 EXPORT ECONOMY

Throughout the 1960s and 1970s, coffee, bananas, cotton, sugar, beef, and, towards the end of the period, cardamom earned the bulk of Guatemala's foreign exchange. Expansion of agro-exports and diversification into production of the latter four agricultural commodities have constituted the foundation of Guatemala's post-1954 development, providing much of the capital for the rising consumption of a minority. During these prosperous decades, the Guatemalan economy was boosted by annual growth rates of 5 percent or more. According to macro-economic indicators, export income was sufficient to mitigate many of the shocks of the first international oil crisis in 1973¹⁸ (Jonas, 1991:76). The effects on the poor majority, however, were mostly negative. Numerous writers have intimately linked the last three decades of agro-export expansion in Central America to widespread impoverishment and the subsequent armed conflicts which arose¹⁹.

¹⁸ This was not the case for Guatemalan industry, which, due in part to the rising costs of industrial inputs, lost its competitive edge (Bulmer-Thomas, 1987:209). Nor were the highland farmers who were dependent on petroleum-based chemical fertilizers able to escape the repercussions of a more than 700% price increase (see Chapter 3).

¹⁹ For example see Lappé and Collins 1978:425-426; Barry, 1987; and Brockett, 1988. Robert Williams (1986) not only links poverty to export policies, but contends by use of overlay maps, that the areas of export expansion were equally the areas of most intensive conflict. André Gunder Frank has expounded on this tendency throughout twentieth-century Latin America where booming exports coincide with the decrease in the well-being of national majorities (1969:286-287).

By the 1980s, Guatemala's economy had reached a point of crisis, exacerbated by war, unfavourable terms of trade for its major exports, and the continuing intransigence of the oligarchy, who as has been indicated earlier, effectively resisted government attempts to impose economic stabilization measures that would have involved ruling class compliance. Investment from the U.S., Guatemala's major investor, deteriorated alarmingly. The only new U.S. business investments in Guatemala were small, privately held firms exporting non-traditional commodities (Barry et al., 1988:44). The non-traditional export scheme, having both an agricultural and an industrial (processing) component was acceptable to the bourgeoisie, which represented both of these sectors. It also fit in with neo-liberal strategies that encouraged countries in the South to increase exports to earn hard currency and meet debt payment schedules.

A note of caution is advised before reading this or any other economic material on Guatemala. With the disintegration of the national economy, macroeconomic indicators found in official statistics are becoming progressively less reliable. Complications arise more than from the long-standing distinction made between peasant and national economies. Economic difficulties have forced large numbers of inhabitants to seek out ways to survive, giving rise to a large informal or underground economy (Jonas

citing Envio, 1991:84). The underground economy is by definition not accessible to census takers. Official statistics, therefore, should be interpreted in this light.

By the end of the 1980s, Guatemala's economy continued to show little internal market demand due to a lack of purchasing power by the majority of its population. It had a low technological base and a continuing dependency on agricultural exports, which contribute 70 percent of its total exports. The agricultural sector was responsible for 25 percent of the republic's national income (Barry, 1990:67). In terms of employment, the Inter-American Development Bank (IDB) estimated that the agricultural sector employs in excess of 50 percent of the economically active population (IDB, 1986:58). Relative to other countries in Latin America, only in Haiti and Honduras was such a large percentage of the workforce employed in the agricultural sector (Barry, 1990:67).

During the 1980s, highly volatile and generally declining commodity prices increased competition from new sources of production. In some cases various forms of protectionism combined to reduce the volumes and/or values of Guatemala's traditional agro-exports. Between 1977 and 1983, the terms of trade for Guatemala's major exports deteriorated by

approximately 40 percent (Feinberg and Bageley, 1985:7). This market contraction occurred at a time when the trade deficit and debt repayment obligations raised the need for Guatemala to increase foreign exchange earnings.

Guatemala's growing trade deficit was financed by foreign debt. In 1980, for example, 5.7 percent of export earnings went to service the debt. By 1987, 41.7 percent of export earnings were used to service the U.S.\$535 million debt. After 60 years of enjoying a positive balance in its international monetary revenues, Guatemala was suddenly a debtor nation (Jonas citing Pérez Jerez, 1991:83). Furthermore, the agro-export crisis led to a lack of confidence in the Guatemalan economy and further de-industrialization and disinvestment.

Despite Guatemala's deteriorating financial condition, and without implementing reforms recommended by the International Monetary Fund (IMF), the United States and the World Bank contradicted their general practice by continuing their flows of aid throughout the 1980s until 1989. This was no doubt an expression of the U.S. security concerns in Guatemala. The IMF, as a consequence of the debt crisis, had become the dominant multi-lateral "watchdog" agency with which debtor nations had to strike a deal before receiving

further financial assistance from other multi-lateral and bilateral sources. The IMF's neo-liberal remedies for highly indebted economies of the South, referred to as structural adjustment, included currency devaluations; wage ceilings; a general cut in public spending including, the removal of state subsidies for social services; the dismantling of protectionist structures, and privatization of state-run enterprises.

Once adopting these measures, countries of the South were expected to rely upon the private sector, together with theoretical world-wide free-market access, for income generation and distribution. Despite growing internal scepticism (Globe and Mail, 18\10\91), the IMF and World Bank continue to insist that both national economies and poverty are best ameliorated if developing countries concentrate their productive energies on exporting manufactured goods such as textiles or electronic goods, or, of significance here, agricultural commodities produced by small farmers.²⁰

²⁰ Export panaceas ignore the regressive role played by industrialized country trade barriers to developing country textiles and agricultural products. They also pay little heed to the functional dynamic whereby the more commodities developing countries produce, the faster prices drop and the more they are left owing. For a review of the damaging effects of this policy prescription, see South (04\90, 35-37).

The IMF eventually managed to force its neo-liberal package on Guatemala. In April 1989, the region's four big international financiers -- the IMF, World Bank, IDB, and USAID -- convened in Guatemala City to "shake Guatemala out of its 25-year-old import-substitution model," and make the country's exports more competitive on world markets (CAR, 28\4\89:126). Two months after Guatemala hosted this international contingent, Central American Report related that import substitution (IS)²¹ was falling out of favour with some of the country's most influential business interests (CAR, 24\6\89). The economically powerful Chamber of Commerce, taking its cue from the global financial institutions, criticized IS for the malfunctioning of the national economy. This was tacit recognition that without unconditional U.S. financial support, the level of foreign capital and technology that fuelled IS was not likely to be maintained. Even successful internationally competitive industry was expected to suffer from problems of de-capitalization, or an inability to replace fixed capital stocks. IMF recommendations entailed dismantling many of these remnants of the Central American Common Market (CACM), an economic block that never generated "self-sustaining"

²¹ IS industrialization, or tariffs and quotas protecting certain "infant industries" from outside competition, was the way in which many developing countries attempted to nurture internationally competitive industry during the 1950s and 1960s.

industry as envisioned due to its heavy reliance on foreign investment, and shifting emphasis to export promotion policies.

Some analysts interpret Central America's turn away from IS towards non-traditional exports as potentially harmful (Paus, 1990), or anti-reformist (Jonas, 1991:78), in a world increasingly dividing itself into large trading blocs. Decreasing regional trade integration weakens the ability of the tiny Central American republics to survive the protectionism of the European Economic Community (EEC) and the incipient North American Free Trade bloc. Nevertheless, Guatemala, like many other indebted countries was persuaded to forego policies that encouraged regional autonomy or production for internal consumption, such as food-grain cultivation, as the prevailing logic stressed that labour productivity was greater in export production.

The immediate social impacts of the IMF-induced economic measures were similar to the destructive results experienced in other countries undergoing stabilization. In November 1989, the government allowed the quetzal to float, leading to a 30 percent devaluation. The price of fuel rose immediately by 20 percent and bus fares doubled. Water and transportation subsidies were eliminated. Food and electricity rates shot up.

Prior to the introduction of IMF-induced shocks, the Cerezo government had taken credit for pulling the country out of its recession after a period of negative growth rates in the early 1980s. This statistical success was largely due to a threefold increase of multilateral and bilateral aid after Cerezo's 1986 election. From 1986 to 1989, the economy grew at an annual growth rate of 2.5 to 4 percent. The Christian Democratic government pointed to several years of positive growth rates as evidence of its successful policies. During the same time period, the public-sector deficit steadily declined, export income increased, tax revenues increased, and inflation was kept at manageable levels. Inflation during the 1987-1988 period of recovery, however, decreased per capita consumption, and thus the living standards of the poor, to the level of 15 years earlier (Jonas, 1991:83).

1.3.1. ROOTS OF DIVERSIFICATION

Guatemala had begun its export diversification long before this became the international financial community's blanket prescription for ailing economies in the South. During the three decades following 1954, land expropriated from small farmers and large tracts of forest were transformed into beef, cotton and sugar plantations. What are now referred to as "non-traditional"²² agro-exports are simply the newest in

²² Those commodities designated as "non-traditional," with 1988 values exceeding U.S. \$10 million, include sesame seeds, seafood, flowers and plants, fruits, tobacco products, and

a series of crops and livestock enterprises introduced over the last century. While coffee and other traditional exports have declined markedly, the newer non-traditional exports have performed better.

Despite a slight but steady decline between 1980 and 1986, the value of non-traditional commodity exports, a category in which vegetables produced by small farmers figure prominently, almost doubled within a year to a record U.S.\$383.1 million, or 29.8 percent of total exports in 1989 (Tables 1.1, 1.2). This was a dramatic increase over 1938 in which non-traditional exports represented 19.03 percent (U.S.\$194.4 million) of total exports. A substantial portion of this 1989 figure was composed of vegetables (U.S. \$17.59 million), which were the largest non-traditional foreign exchange earner behind chemical products (U.S. \$20.9 million). By 1991, traditional exports accounted for 58.2% and non-traditional exports reached 37.4 percent (Table 1.1). Vegetable exports had by this time surpassed chemicals -- U.S.\$38.8 million compared with 27.5 million -- to become the fifth strongest overall national export (CAR, 7\02\92).

Non-traditional exports strengthened Guatemala's troubled economy many years before some analysts thought such a

vegetables, as well as manufactured goods, such as chemicals and wooden durables.

TABLE 1.1--VALUE OF EXPORTS FROM GUATEMALA BY SECTOR
(US \$ Million)

Exports	1987	1988	1989	1991
Traditional	581.8 (58.93%)	590.9 (57.38%)	649.2 (50.43%)	621.9 (58.20%)
Central American	230.5 (23.35%)	236.4 (23.14%)	254.9 (19.85%)	47.7 (4.40%)
Non- Traditional	175.0 (17.73%)	194.4 (19.03%)	383.1 (29.76%)	399.8 (37.40%)
Total	987.3 (100%)	1021.7 (100%)	1287.2 (100%)	1068.7 (100%)

Source: Adapted from GEXPRONT, *Análisis del comportamiento de las exportaciones*, 1989; El Gráfico, 17/02/90; and CAR, 07/02/92.

Note: Percentages are in parentheses.

**TABLE 1.2--SELECTED GUATEMALA VEGETABLE EXPORTS PER YEAR,
WEIGHT, VALUE, AND PERCENT EXPORTED TO THE U.S.**

Crop	1984	1986	1987	1989
Snow Peas				
Metric Tons	971.9	1,689.4	2,945.8	4,376.7
quetzal-mns.	0.74	1.0	3.4	7.9
Percentage Exported to the U.S.	75	74	80	78
Broccoli				
Metric Tons	119.3	5,974.1	12,389.4	4,313.9
quetzal-mns.	0.4	92.6	8.0	2.6
Percentage Exported to the U.S.	100	81	94	76

Source: Adapted from GEXPRONT export records.

situation was plausible (Feinberg and Bagley, 1985:70). As recently as 1989, Barry (1989:71) doubted that non-traditional exports would grow past 10 percent of total exports. Nevertheless, they improved the country's balance of payments, and enhanced the private sector's role in the national economy. Yet despite more than 15 years of exporting vegetables, the benefits of this booming agro-export, like those of many booming exports before, have not trickled down in any discernible way to the poor majority.

1.4 SOCIAL INDICATORS

The well-being of the poor majority deteriorated substantially during the 1980s (Barry, 1989:60). The prices of basic goods rose dramatically and wages remained below subsistence levels. Guatemala now has the dubious distinction of having the third lowest "physical quality of life" index in Latin America after Bolivia and Haiti. In 1988, nation-wide unemployment was estimated at 13 percent, whereas underemployment was estimated at 50 percent (Barry, 1987:138). Meanwhile, between 1970 and 1984 the percentage of national income captured by the top 20 percent increased from 45.5 percent to 56.8 percent.

The social debt figures produced by Cerezo's government in 1987 are telling. Official calculations estimated that 83

percent²³ of rural dwellers lived in poverty, 40 percent in what they referred to as "extreme poverty," or the inability to afford a minimum diet. Eighty-one percent of children suffer from malnutrition, and 49 percent of all children die before the age of nine. Sixty-six percent of homes lacked clean drinking water.

According to a 1987 UNICEF study, Guatemala had the worst illiteracy rate in Central America, the highest number of infants with low birth weight, and the lowest percentage of pupils enrolled in the educational system (Painter, 1987:xvi). In short, whatever the index used, be it rural unemployment, nutritional status, access to health and educational services, or any one of a dozen other measures of social welfare, Guatemala's peasantry is one of the poorest in Latin America. These statistics find their extremes among the indigenous population of the central highlands.

1.5 CULTURAL GEOGRAPHY OF VEGETABLE PRODUCTION

Guatemala's cold-weather vegetable production occurs in the 18 percent of its territory referred to as the central highlands. The highlands hold approximately half of the

²³ For the same year, Jonas (1991:177) estimated that 87 percent lived in poverty with approximately 66 percent living in extreme poverty.

country's population (Smith, 1990:6).²⁴ Most observers distinguish the western highlands, the Mayan heartland, from the flatter and dryer eastern highlands with a majority ladino²⁵ population. The vast majority of vegetable production is found in this western portion of the highlands.

The production zone in the western highlands forms a corridor which roughly follows the Inter-American highway between Lake Atitlán and Guatemala City (Figure 1.1). This growing region has absorbed lands found within the departments of Chimaltenango, Guatemala, Sacatepéquez, and Sololá (Figure 1.2). These departments share substantial regions of temperate micro-climates, an abundance of unemployed and under employed farmers, and transportation

²⁴ Guatemala's total population has been estimated at approximately 9,200,000. This figure represents a 37 percent increase (from 6,054,227 in 1981) in less than a decade (Guatemala. INE, 1985). The 1981 census claimed that 41.9 percent of the population was indigenous. Juanita Batzibal Tujal, one of the founders of the International Maya League, cautions, however, that the percentage of indigenous inhabitants of Guatemala is much higher. She faults government census takers for not considering family histories and personal belief systems, but rather stressing clothing and external customs, in their definition of ethnicity (Mandell, 1992:12). Indigenous linguist Gloria Tujab argues that the population is closer to 70 percent indigenous (cited in Moe, 1989:9). The government benefits from smaller estimates of indigenous persons as this proves that its policies of racial assimilation are effective.

²⁵ Ladino refers to people of mixed blood and western culture, and is also used in Guatemala to identify Indians who have adopted western costume and culture.

FIGURE 1.1--GUATEMALA - PRODUCTION REGIONS

Source: Smith (1990)

accessibility via the country's principal highway. The intensity of export crop cultivation tends to increase with proximity to the Inter-American highway and its feeder roads. This well-maintained transportation route provides access to the capital city airport, as well as the Pacific and Caribbean marine ports.²⁶

The western highlands are distinguished by temperate-climate lands, or *tierra fría*, situated between the 1500 and 3000 metre contours (see Figure 1.3). Higbee (1947) described most of Guatemala's *tierra fría* as rocky, untillable mountainsides and eroded ravines (175:1947). The western highlands are subjected to a dry season of five to six months between December and June. At higher altitudes, mist and dew often make the soil moist enough to germinate seeds before the rainy season begins. Farmers with land at higher altitudes are thus favoured with a natural advantage over

²⁶ Local aid agencies, business interests, and the military, however, have not limited their aspirations to the present areas of cultivation. Representatives of these groups have envisioned export vegetable cultivation in the Ixil region of northern Quiché province, an area recently ravaged by civil war. Experimental horticulture thrived in this water-abundant region. This favourable growing climate is complemented by a large labour force of very poor and desperate people -- small farmers, widow support groups and church groups -- traumatized by civil war. The main obstacle to profitable vegetable cultivation in the Ixil region, however, is poor transportation access as it lies five hours by dirt road north of the Inter-American highway. In addition, the demand for Guatemalan cold-weather vegetables is already met by centrally located farmers.

those who cultivate the dry lowlands even though higher lands are often at greater risks from frost and high winds.

The majority of cold-weather vegetable producers in Guatemala are descendants of the Mayas, many of whom still reside in the western part of the central highlands where they were first encountered by the conquistadors. The population, distinguished by many linguistic, cultural and religious cleavages, is widely dispersed over the landscape, with relatively few people living in villages and hamlets. They are mainly near-subsistence farmers, many of whom have for almost a century eked out an existence by migrating to coastal plantations during the harvest season.

Most inhabitants have access to some land on which they grow **milpa** (maize and beans) and some quantity of market crops. Approximately 27 percent of the rural population is landless. Those who possess land have seen their average farm plot size decline from 1.71 to 0.79 hectares per person over the last 30 years (Gardner, 1991:10). Another observer estimates a decrease from 1.3 hectares in 1950 to less than 0.85 hectares per person in 1975 (Davis, 1988:15). Over-intensive farming, subdividing land among children, and deforestation continue to diminish the quality and plot size of small-farmer holdings.

1.6 CONTROVERSY: PHILOSOPHICAL UNDERPINNINGS

The promotion of export vegetables in the Mayan highlands has generated much controversy. In brief, critics maintain that exports undermine rural welfare by threatening household food production while making peasants dependent on unstable international commodity markets and ever-escalating agro-chemical prices. This gives rise to speculative land markets where the smallest landholders who are generally unable to buy or rent additional plots or costly inputs lose their land and are forced to work as seasonal labourers. In the long-term, the benefits of the new technological inputs used to grow vegetables tend to be monopolized by a minority, while their externalities destroy ecosystems and human health.

Those in favour of small-farm export vegetable production -- the majority from aid and agricultural institutions -- are generally driven by a consideration of the national economy as a whole. They embrace high-value exports as a means by which foreign exchange is earned, employment is created, and small-farmer incomes are increased. Technology transfers increase rural output and farmer satisfaction, thereby checking the alarming rate of rural to urban migration,²⁷

²⁷ Although Guatemala is Central America's least urbanized nation (38 percent of the total population in 1985), Guatemala City has recently experienced growth rates of 12 percent per year, the highest in Latin America. This growth is not driven primarily by the perception of urban opportunities but "push

mitigating the otherwise monumental problems related to displaced rural populations. These technocrats are supported by many development theorists who contend that the primary role of small-farm agriculture is to provide a livelihood for those people presently living in rural zones of developing countries (Foley, 1989:235; Chambers, 1987:4; Conway and Barbier, 1990:92; Posner and McPherson, 1982:348). These theorists contend that the present status quo on small-farms is clearly not providing sufficient sustenance for rural inhabitants. They generally accept that some form of technology-induced transformation must take place to enhance yields and halt the degradation of small-farm ecosystems. Without action, impoverishment will be more severe. Environmental degradation will proceed as Guatemala's increasing population growth rates motivate farmers to reduce fallow periods and expand cultivation of the more marginal lands (Posner and McPherson, 1982:347). The intensity of cultivation will also be heightened as the absolute size of farms declines due to subdivision among subsequent generations.

1.6.1 THE FOOD ARGUMENT

One of the first criticisms of Guatemala's nascent export vegetable strategy appeared in Francis Moore Lappé and

factors", including the inability of the agro-export sector to absorb labour, the counterinsurgency war, and the 1976 earthquake (Jonas, 1991:97).

Joseph Collin's widely read work "Food First: the Myth Behind Scarcity" (1977:425-426). The authors warned that the displacement of food crops with vegetables for export in Guatemala's highlands would ultimately benefit a small minority of the "opportunistically entrepreneurial" farmers. Other observers have since lamented the reduction in land devoted to staple crops, which threatens highland food security, or the ability to meet a family's nutritional needs throughout the seasons (Barry, 1987:86; Gardner, 1990:11). Reduced highland production of basic grains decreases national output and requires increased food imports from other countries.

On the other hand, most USAID representatives interviewed expressed little concern for the potential threats to highland food security. They suggested that vegetable farmers have increased their basic grain yields. Many also reiterated USAID's long-standing grievance that maize was too expensive to produce in Guatemala. The optimal situation would have Guatemala importing cheaply produced maize from the U.S. while exporting vegetables (Smith, 24\11\89; Carrasco-Limo, 03\02\90; Clark, 19\11\89). This calls for dependable and stable food distribution markets to serve highland households.

This market integration of highland farm systems generates a reliance on the often volatile earnings from vegetable sales for household food. The extreme price fluctuations characteristic of vegetable markets (Figure 1.4) are such that the export crops of independent farmers will occasionally be rendered worthless. The dual hardships of reduced purchasing power and diminished food-crop yields have been criticized for reducing consumption and leading to further malnutrition. Valdés (1991:104), to the contrary, dismisses critics who stress peasant disadvantages when competing in volatile international markets. These "paternalistic" expressions, asserts Valdés, fail to grasp that peasants can assess risk and balance their agricultural systems between food and export crops. Valdés and other authors affiliated with IFPRI affirm that small farm barriers can best be overcome by government policy focused on the efficient functioning of food, labour and financial markets (Braun et.al., 1989:91; Valdés, 1991:112). Glover (1987:445) cautions, however, that small-farm growing schemes are typified by a plethora of competing interests made up of government agencies and political forces.

Lappé and Collins (1977) have been accused of both extrapolating experiences from one country to another and ignoring the costs and risks associated with grain self-sufficiency (Hillman, 1981:382). The value of Hillman's

**FIGURE 1.4--SNOW PEA PRICES PAID TO FARMERS BY
QUATRO PINOS COOPERATIVE, 1984-1987**

Source: Braun et al., (1989)

Note: The "monthly prices" paid to Cooperative members reflect the real market value for snow peas.

argument is that it brings attention to subtleties that critics often miss or choose to ignore. Barry (1987) and Gardner (1990), each in their equally non-empirical works, base their condemnation to a large degree on the nature of socio-economic power in Guatemala and a few interviews with key informants. The approach of these authors, it should be stressed, is not without interpretive merit. They have shed light on the fundamental barrier to progressive agricultural transformation: the entrenched status quo. Their argument would be much more forceful, however, if supported by a rigorous community-based analysis. Important indicators, such as crop yield changes and labour allocation changes, should form the basis of any thorough argument for or against horticulture expansion in the highlands. An analysis of how these obstacles manifest themselves at the local level would clarify and strengthen, and thereby lend more credence to, their arguments.

1.6.2 TECHNOLOGY TRANSFERS

USAID literature implies that the wide varieties of vegetables being promoted in the Guatemalan highlands each find their locally specific growing conditions due to variations in wind, topography, temperature, humidity, rainfall, and soil type. Vegetables grown in the highlands thrive under this diversity, many finding their ideal growing conditions. In this light, micro-climates are newly

created resources rather than impediments to the prevailing agricultural system (Kelly Harrison Ass., 1984:44).

Vegetables are not considered to be destructive to farm systems. Indeed, Conway and Barbier (1990:83) do not make a distinction between what is often considered environmentally friendly food crops or environmentally degrading export crops. Deterioration of the land base, the authors argue, is caused by poor land-management techniques rather than a selected crop portfolio.

Highland farmers have inherited knowledge that allows them to effectively manage their traditional farm systems of maize, beans, and certain locally-consumed vegetables (Wilken, 1987). Growing vegetables to export standards, however, requires the precise use of a new package of technological inputs. To compete in production for export, farmers must employ improved seed varieties²⁸ and numerous agro-chemicals whose externalities aggravate many human and environmental health problems. Critics warn that vegetable cultivation in the western highlands threatens to perpetuate Guatemala's legacy of pesticide misuse²⁹. Applications of

²⁸ For a review of how ALCOSA, a multinational agro-industry in Guatemala, discouraged the use of local varieties of cauliflower in favour of hybrid varieties, see Kusterer (1981:23).

²⁹ Pesticide misuse on the Pacific coast cotton plantations is responsible for what has been recognized as the region's -- if not the hemisphere's -- most pressing environmental contamination and human health problems

chemical fertilizers, pesticides and fungicides are essential to the production of market-specified grade "A" vegetables. Vegetable farmers, like fieldworkers in the cotton region, are said to be equally uninformed about agro-chemicals, applying them in excessive amounts and handling them with the same degree of inadequate protection (Gardner et al., 1990:10).

1.6.3 POLITICAL ECONOMY OF IMPROVED TECHNOLOGIES

Pesticides are an essential element -- along with hybrid seeds and chemical fertilizers -- of Guatemala's export agriculture production system. These technologies were brought to the Third World via the Green Revolution. Unfortunately, these yield-raising technologies did not solve the problem of world hunger as promised. Unlike the large- and middle-sized farm beneficiaries, small-farmers -- the group most in need -- did not normally have access to the necessary inputs and credit sources (Pearce, 1979; Griffin, 1974). Rural poverty was diminished only to the

(Leonard, 1987:144; Weir and Schapiro, 1981:13). Estimates indicate that 80 kilograms of insecticide are used on each hectare of cotton annually, compared with the average of 6 kilograms per hectare in other Central American countries (Leonard, 1987:144). This level of insecticide is one of the highest in the world, which has not surprisingly produced the highest cotton yields for non-irrigated land in the world (Handy, 1984:200). Damages resulting from such high levels of insecticide usage include the growth of pesticide-resistant insects and the contamination of ground water. Human pesticide poisonings and deaths are also common.

extent that these low-income peoples benefited from lower international grain prices.

The Green Revolution involved other costs in that its technologies displaced a large number of native crop strains, many of which can only be found in seed banks. The newer hybrid plant varieties inherently established a reliance on the part of growers on the multinational seed producers. These seeds do not produce new generations of high-yield seeds. Indeed, the progeny are often sterile and vulnerable to disease (Weinberg, 1991:82-83). These so called "improved" seeds force growers back to the market before each planting.

The Green Revolution's high-yield varieties will soon be superseded by a new generation of agricultural technologies based on genetic engineering, or the "Biotechnology Revolution." The laboratories of recently merged pesticide/seed companies promise to introduce "designer seeds" to once again solve world hunger.³⁰ Plants are being genetically altered to respond to increased volumes of particular corporate brands of pesticides. Twenty-seven corporations, for instance, are working on herbicide tolerance for almost all of the world's major food crops

³⁰ For a summary of this debate see "Third World Resurgence", No.13. 1991.

(TWR,1991:32). The goal of strengthening plant tolerances is to allow for increases in the already lethal levels of herbicides being applied. Herbicides eliminate the need for weeding by hand, which would otherwise employ peasants and landless labourers.

Unfortunately, many small farmers will be forced to adopt these new processes because, at least temporarily, yields will be increased. Peasants will have to buy and apply more pesticides to match the yields of competitors. The environment and human health will no doubt suffer as a result. Growers will be further removed and vulnerable to their own farming systems. What is more, unlike the Green Revolution, whose research was conducted by public institutions and the results made available worldwide, the "bio-revolution" is being conducted in the private corporate sector (with public subsidies). Any benefits from these research endeavours will go directly to those with the ability to pay (Warnoc', 1987:314-315; Buttel, 1990:165). The likely result, as was the case of the last (Green) Revolution, is that small farmers will be unable to afford the capital-intensive inputs required, and will ultimately be placed in an uncompetitive position vis-à-vis medium and large farmers.

1.6.4 WORLD MARKETS AND GLOBAL POLITICS

The last group of arguments centres around the nature of vegetable markets and marketing channels. With virtually no domestic demand for these export vegetables, no alternative exists for selling sub-standard vegetables or surplus produce that cannot be marketed internationally. After production, market access and marketing are the other two essential elements that make exporting vegetables possible.

World market demand for Guatemalan produce, according to USAID, is secure due to steadily increasing vegetable consumption by health-conscious European and North American consumers. These exports, like other non-traditional exports, have been nurtured in large part by the U.S. through the Caribbean Basin Economic Recovery Act (CBI). The act allowed 3800 products from 22 Caribbean Basin countries -- excluding Cuba and Nicaragua -- duty-free access to the U.S. market from 1984 to 1996 (Moe, 1989:75). Guatemalan vegetable exports have increased in response. The market is volatile, however, due to the dynamics of the world economic system and for other U.S. geo-political considerations.

Among the threats to Guatemala's market access are the protectionist pressures building up in Washington. Some analysts suggest that the CBI will be sacrificed to domestic policy (Miami Herald, 25\02\90). This is a function of the

stand against foreign imports by the powerful U.S. farm sector. This body has had much success lobbying against competitive Mexican vegetable imports (Riding, 1986:484). Not to be daunted, one of Mexico's current political objectives is free access to the U.S. market for all fresh and processed vegetables under the auspices of the North American Free Trade Agreement (NAFTA) (Utne, Nov./Dec. 1990, No. 42). Guatemala and the other Central American republics fear that trade and investment benefits will be re-directed to Mexico under the NAFTA (CERIGUA-WB, 9-15\08\92). Mexican produce already competes with Guatemalan produce exports. Moreover, competition may soon come from new sources. In a recent diplomatic forum, U.S. President Bush offered to aid coca-growing nations in the promotion of vegetable cultivation as an alternative export to weaken the narcotics industry (NYTs, 29\02\92).

Access to the U.S. market is in many ways a "political gift" that responds to Washington's definition of its geopolitical interests at a particular juncture. With the perception of peace in Central America, U.S. decision-makers are shifting their priorities elsewhere (NYTs, 26\05\92). Any of these trade and security policies, if they come to fruition, would further restrict market access or increase competition among producer nations. In Guatemala, these developments would ultimately lower rural small-farm

incomes, increase bankruptcies, and precipitate the further domination of vegetable exports by larger farmers.

1.6.5 CONTRACT FARMING AND DIRECT EXPORTS

Both critics and benefactors of Guatemala's highland vegetable program agree that small-farmer benefits are best attained through collective and representative structures, such as cooperatives or agricultural associations. These farmer groups, if functioning properly, coordinate their memberships and represent their members' desire to achieve maximum profit. This latter objective is generally pursued through an active search for the most profitable market outlets. From the mid-1970s until the early 1980s, the bulk of small-farm export vegetables were exclusively marketed through contract-farming arrangements with local agro-industries. In the mid-1980s, a number of cooperatives began experimenting with private marketing channels. A few cooperatives were very successful at commercializing their crops. Yet even these more vertically integrated cooperatives found it worthwhile to continue contract farming, diversifying their market outlets and income sources, and decreasing the likelihood of complete market failure.

Contract farming replaces open market exchange. It has been defined as

those contractual arrangements between farmers and other firms, whether oral or written, specifying one or more conditions of production and/or marketing of an agricultural product (Glover citing Paul Roy, 1986:24)

In this arrangement, the firm or agro-industry exercises considerable, but not complete, control over raw material production and does so without ownership of the production unit. This is what Watt (1990:156) has referred to as "vertical coordination," of agro-industry as opposed to "vertical integration" which would include complete corporate responsibility for production and marketing. Production practices and the buyer's share of inputs (e.g., extension services, machinery, transportation, credit, agro-chemicals) are arranged in advance under contract. The purchasing unit generally regulates the final price paid to the suppliers.

There are substantial benefits small farmers can gain from contract farming. These are generally the result of technology transfers and access to lucrative foreign markets. Small-farm gains are most advantageous when the contracted crops have short growing seasons; when crop prices are superior to local alternative crops; when the production technology is not undergoing rapid change (Glover, 1986:34; 1987:445) and when the crop is labour intensive (USAID, 1984). Efficiency and profits are further enhanced when farmers are not dependent on the agro-industry

for farm inputs, specialized machinery, timely harvesting or technical know-how.

Short growing seasons, characteristic of Guatemala's two major highland export crops, give farmers a degree of flexibility with which to respond to market fluctuations. Broccoli and snow peas are generally harvested between two and three months after planting. These crops require a considerable degree of labour intensiveness. To ensure vegetable quality, farmers must be vigilant throughout the planting, cultivation, harvest and post-harvest periods. Snow pea cultivation has proven to be highly resistant to mechanization, and in the words of a USAID official "mops up" regional underemployed and unemployed labour (Smith, 24\11\89).

There are also many risks inherent in contract farming with agribusiness. Although short-term income can be significant, wide price swings and overproduction are constant hazards that cannot be mitigated by selling to non-existent local markets. Price fluctuations are difficult to predict, resulting from seasonal factors, unexpected climatic changes or unexpected large plantings by competing farmers. Price control by the agro-industry buyer is also a concern. Glover (1987:444) warns of "agribusiness normalization," defined as the tendency for buyers to offer attractive short-term

prices that progressively dwindle in the long run. Industry has numerous other means at its disposal to undermine the contractual price, including manipulating weights or quality standards, raising the price it charges for inputs, or delaying payments and collecting outstanding interest³¹ (Glover, 1986:24; Kusterer et al., 1981:25-40).

Quality risks are a function of the specific vegetable quality demanded by the North American and to a lesser extent, European markets. Produce must have the proper texture and be cosmetically unblemished by fungus or unsightly imperfections. The entire marketing chain in consuming countries -- broker, distributor, wholesaler and retailer -- depends on a standardized product. There is no apparatus for accommodating second- and third-class vegetables. Thus, producers, processors and exporters must abide by stringent standard criteria to maintain quality from farmer to market. Once harvested, produce quality is adversely affected by fungus growth and improper storage and handling. The producer often faces the added risks of incomplete crop knowledge, such as proper pesticide application (e.g., that which respects United States

³¹ Watt (1990:160-161) sees contract farming as a means of further exploiting household labour or a route by which capitalism avoids free-wage labour, which threatens its control.

Department of Food and Drug standards), and poor weather conditions.

In many contract agreements, both the price and the quality risks can be passed back to the individual growers through the purchase agreements, which specify that the grower will be paid a price commensurate with the price actually received, and for a quality actually paid, by the final buyer. Not only does this discriminate unjustly against those least able to resist, but there are longer delays waiting for a quality statement and working capital without which investment in the next crop (or perhaps food) may have to be foregone.

Cooperatives that engage in direct exports have generally overcome production and intermediary difficulties and are subject to a different set of risks. The direct marketing of perishable vegetables to international markets calls for a thorough knowledge of market channels and considerable business acumen. A trustworthy broker, and the flexibility to travel to foreign ports when misfortune strikes, are necessities. In general, immediate means of communicating -- fax, phone, telex -- are mainstays in this commercial trade. They keep the broker and the production unit aware of market irregularities, shipment times\delays, produce quality information and payment schedules. Moreover,

managers with foresight often consult a network that monitors commodity trends -- in Guatemala, the Chamber of Non-traditional Exporters (GEXPRONT) -- to keep in touch with market trends and related information emanating from consuming countries and other supplying countries (e.g., weather and pertinent political events).

1.7 CONCLUSIONS

The 1980s was a decade of economic decline in Guatemala. After approximately three decades of macro-economic indicator prosperity, the value of its traditional agro-exports decreased by as much as 40 percent. Non-traditional exports -- and particularly vegetables -- helped to boost the national economy and off-set the slumping traditional exports. Small farm export crops were harmonious with structural adjustment policies which sought to limit production for internal and regional markets in favour of production for foreign "hard currency" markets.

The bulk of Guatemala's export vegetables are grown in the western highlands where they find their ideal growing conditions and ample labour from the indigenous population. Although the benefits are potentially high, the vegetable strategy is also distinguished by its complexity and inherent risks. The risks range from environmental contamination and soil degradation, human health threats,

food security, increasing landlessness, increasing local and international competition, production and marketing difficulties, potential market failure, and many other consequences due to smallholder powerlessness vis-à-vis national elites.

Most of Guatemala's political and economic power is shared between the oligarchy and the military. This ruling coalition has proven to be an enduring institution characterized by the maintenance of a rigid agrarian and social structure. This concentration of power has restricted the nominal government, and more importantly, put an increased burden on the urban and rural poor. Wielding its dominance, the ruling coalition has effectively terminated any fiscal or agrarian measure which threatens its perceived interests. There are few reformist tendencies in this political structure that might give rise to policies which favour smallholder agriculture. The following chapter outlines the factors which gave rise to the concentration of power. This unequal relationship was largely established through export agriculture, or the same means presently being recommended to create peasant economic stability and independence.

CHAPTER 2: LAND, LABOUR AND RURAL DEVELOPMENT

2.1 THE COFFEE ECONOMY AND THE PEASANTS

Guatemala's current export-led model began to take shape in the mid-nineteenth century when coffee cultivation and export took root, mobilizing an unprecedented level of financial and production resources. The model was straightforward. Shortly after its introduction, coffee dominated exports and this export commodity in turn determined investment, credit, land use, labour use, and imports. Imports, which gradually grew due to increasing national income, stimulated commerce and many branches of industry, while the flow of foreign trade determined government revenue (Bulmer-Thomas, 1987:275). Although different financial mechanisms, economic strategies and additional export crops have appeared, many of the socio-economic relationships produced by Guatemala's nineteenth century export model still prevail.

This chapter focuses on the transformation of Indian land and labour relationships caused by the introduction of coffee and other subsequent export crops. The coffee economy revolutionized the rural economy and strengthened the

country's minifundio/latifundio³² system. The agro-exporters incorporated the state into their agro-export vision, the latter taking on its now traditional role of ensuring land and an Indian labour force for capital accumulation. Natives ultimately were to lose control over much of their resources. Emerging in the mid-twentieth century, neither capitalist relations of production nor rural development redressed the internal and external pressures that further restricted survival options of small farmers. Although many Indians were dispossessed of their factors of production, the processes were not uniform across all Indian communities. There were, and continue to be, substantial geographical variations which merit clarification.

Guatemala's rural history during the colonial period (1524-1821) and from independence to the liberal revolution (1821-1871) has been poorly researched (Smith, 1984a:197; McCreery, 1990:96-97). The fate of the Indian majority during these periods is only now starting to receive the attention it deserves from historians and anthropologists.³³ Although their analyses are not always similar -- Smith's

³² These terms refer respectively to small-farms and the larger, more extensive landholdings. There is often an implicit functional relationship between the two whereby the tiny minifundios support labourers for the latfundios.

³³ These academics include, among others, David McCreery, Julio Castellanos Cambranes, Ralph Lee Woodward, George Lovell, Jim Handy and Carol Smith.

controversial labour shortage hypothesis stands out³⁴ -- a continuous chronology of how the highland Maya existed and resisted will be put together from the fragmentary evidence available.

2.2 LAND AND LABOUR EXPROPRIATION

The economic, social and political priorities of colonial Guatemala were determined by the needs and interests of the dominant classes in Spain. Colonial policy established the basic patterns of underdevelopment in Guatemala: mono-exports (indigo and then cochineal -- both dyes were replaced with chemical substitutes by the mid-1800s), extreme wealth co-existing with extreme poverty, decapitalization by an extra-national elite, a lack of infrastructure, a weak state, and structural oppression of a large number of the country's indigenous inhabitants (Jonas, 1991:13-16).

During the latter half of the Spanish colonial period, most authors agree that Indian control of their land and labour became stronger, especially in the more isolated parts of the central highlands. They equally concede that the

³⁴ Smith (1978, 1984a, 1984b, 1990) has developed a hypothesis of continuous highland autonomy from the national economy, or the "labour shortage" assumption (see Jonas, 1991:143).

breakdown of state control due to struggles for independence (1821-1823) and its aftermath allowed the highland population to further consolidate their independence through communal structures (La Farge, 1940).

Many factors gave rise to this period of autonomous development in the countryside. Cambranes (1986b:216) puts emphasis on the weakness of the ruling liberals after the struggle for independence from Spain and Mexico. He claims they were not an "organic formation" and were unable to displace the political and ideological influence of the clergy. McCreery (1986:102) stresses that the lack of a stable income-earning export crop diminished the attractiveness of Indian land and labour. The new government's need for coercive labour-appropriating mechanisms, which had proved effective earlier, subsequently diminished. Others suggest that it was the peasants, through rebellion and by backing the presidency of the peasant revolt leader Rafael Carrera (1838-1865), who delayed liberal reform for more than three decades³⁵ (Smith, 1984a:201-202; Handy, 1984:35-55; Woodward, 1990:61-66). This resistance to liberalism blocked the necessary reforms that would have established a coffee economy at about the

³⁵ Nineteenth century liberalism in Guatemala was anti-clerical and favoured "laissez-faire" and free trade economic principles.

same time that Costa Rica successfully began to export coffee in the early 1800s.

McCreery neither romanticises this period of Indian isolation nor underestimates its significance. He claims that free from the church and central government, Indians were subject to, but not overwhelmed by, disease, war and feuding between and within communities. Disadvantages were balanced to some degree by the flourishing of traditional institutions of self-government (McCreery, 1990:100-104). Moreover, in their isolation, many Indian communities abolished colonial vices (e.g., card playing and alcoholism) and increased their agricultural output through communal labour practices (Cambranes, 1985:41-42). Some communities were encouraged by the government to grow coffee on their communal lands during the latter half of the Carrera presidency (Woodward, 1990:68). Others felt that coffee (a perennial crop) went against the rhythm of subsistence agriculture and the traditional pattern of crop rotation. What is more, highland labour was not in demand during the first part of the nineteenth century. Cochineal production, Guatemala's chief and almost sole export crop from the 1820s to the 1860s, employed primarily ladino labour rather than Indian workers (Cambranes, 1986b:217). Most indigenous inhabitants remained basic grain cultivators, producing a

surplus that accounted for most of the country's food needs during the late nineteenth century (McCreery, 1990:106).

While the villages thus occupied themselves, Guatemala's export economy began to shift from cochineal to coffee.³⁶ In the short space of 15 years, between 1856 and 1871, coffee exports grew from one percent of total exports to fifty percent of total exports. Five years later, the quantity exported had again doubled. Coffee cultivation, given suitable growing conditions throughout the country, expanded commercial agriculture geographically to all departments of the republic and strengthened Guatemala's ties to foreign markets. This rapidly altered the country socially, economically and politically in a few decades, far beyond what had been experienced during 300 years of colonialism.

The shift from a mono-export economy based on the slumping cochineal to one based primarily on coffee required basic transformations in infrastructure, land tenure and labour (Jonas, 1991:18). In terms of infrastructure, coffee production and export precipitated the establishment of a transportation and institutional support network. Roads and

³⁶ Smith (1984a:202-205) claims that it was the opening of peasant communities to the exchange economy -- through petty commodity production -- during the period of relative isolation at the beginning of the nineteenth century that allowed capitalist relations of production to finally take hold in the region.

ports were constructed and improved. Railway lines were laid linking production areas with ports of embarkation. To protect their growing business interests, the country's plantation owners established the National Army in 1873 (Cambranes, 1984:133). By 1881, three major banks had been established to facilitate the delivery of credit to large-scale cultivators (Handy, 1984:64).

Coffee required an adjustment of land tenure, for larger concentrations of land were needed than had been utilized for previous exports. Much of the land most suitable for coffee cultivation belonged to the indigenous communities who used them to grow subsistence crops. This land is generally located in the upper Pacific Piedmont, or the region lying between the 500 and 1500 metre contours (Figure 1.3). Once the value of this native communal land was recognized, the state began to grant entrepreneurs the use-rights through various conspiratorial and underhanded methods (Cambranes, 1984; Woodward, 1990:68-69). By 1877, the father of Guatemala's export model, Liberal dictator Justo Rufino Barrios, proclaimed that all of the indigenous communities' title deeds issued by the Spanish colonial authorities were null and void.³⁷ Large tracts of land claimed by Indian communities passed into the hands of the

³⁷ McCreery (1991:96-97) reproaches authors who interpret Barrios' decree as a *fait accompli*, ignoring the fact that expropriation was a more insidious and complex procedure.

state and were subsequently sold to the highest bidder. Land for coffee cultivation was also made available by the total expropriation of church holdings and the sale of state-owned estates (Cambranes, 1986b:220-222). Barrios, already a coffee grower before becoming the chief of state, became the country's largest landowner.

Prior to this period of coffee expansion, Indian landlessness was not a serious problem (Cambranes, 1985:40-41; Woodward, 1991:67-68; McCreery, 1991:98). Most land-related litigation in colonial courts concerned disputes between rival Indian *municipios*.³⁸ Those who lost the court battles did not become landless, but had to go much farther afield for water, firewood, or pasturage (Smith quoting Davis, 1984a:199). Coffee production, however, precipitated the establishment of the plantation class, which would grow to threaten the subsistence and cultural survival of the Indians. By the first decade of the twentieth century, it had been estimated that Indian communities had lost roughly one half of the land they had claimed during the colonial period (Smith, 1984a:204).

The population of highland Guatemala, however, never endured the massive land confiscations -- neither during the

³⁸ The *municipio* was a colonial administrative unit. It was the lowest level political unit and the unit subject to tribute and labour levies.

colonial period³⁹ nor immediately after independence -- that some areas of the Third World have, such as neighbouring El Salvador after 1881 (McCreery, 1990)). During the nineteenth century, the elites failed to penetrate the highlands for numerous reasons. First, lands above 1500 metres (the central highlands) were not suitable for coffee cultivation. The best quality coffee is grown at lower elevations, referred to as the upper piedmont. Second, the oligarchy feared reviving the peasant revolts of the 1830s which, as mentioned above, had been successful in delaying liberal reforms.

Finally, there were functional reasons for maintaining the highland status quo. Community land, as mentioned earlier,

³⁹ The failure of colonial authorities to occupy or take advantage of the productive and populated western part of Guatemala (a portion of which later became the most productive region of the country) is one of Guatemala's historical enigmas, which has preoccupied many anthropologists and historians. With labour scarcities throughout the colonial period -- becoming crucial in the seventeenth century (MacLeod, 1973:229) -- western Guatemala continued to be neglected. Moreover, instead of using tribute extraction methods as a form of labour control in the western highlands, a standard practice of global economic expansion in Peru and neighbouring Chiapas, Mexico, they used slavery, which is characteristic of regions with labour scarcities. This has been hypothesized as the response to the tight-knit community structures encountered in the western highlands and the difficulty of controlling the inhabitants unless they were taken from their home communities (Smith, 1984a:198). McCreery (1991:98-99), on the other hand, attributes this to the elites' preoccupation with commerce and the indigo fields of El Salvador, and the need to keep Indian communities unified to safeguard tribute extraction.

produced most of the country's food; capitalist production could not compete with peasant production in the late nineteenth century (McCreery, 1991:106). Moreover, labour demands on coffee plantations, after they were carved out of the forest and planted, became distinctly seasonal. This required large numbers of workers for four to six months of the year for weeding and harvesting (McCreery, 1986:104). The peasant highlands served as a cheap source of labour reproduction in the interim. To this end, communal resources were manipulated to meet the minimum sustenance needs of the off-season workers, children and the aged (McCreery quoting *Recopilación de las leyes emitidas*, 1986:104).

While land was being secured, the rural elite's need for labour to work their plantations grew, especially at harvest time. As was the case with land, labour was secured through state coercion and repression. The state apparatus intervened on behalf of the coffee entrepreneurs to recruit and control workers, often forcing the rural population into private debt contracts. The central role played by the state in Mesoamerican debt servitude resulted in a more severe peasant control than that practised in much of the rest of Latin America. Historian David McCreery has referred to it as "an odious feudalism" (1986:99).

The insufficient number of peasants willing to plant and harvest export crops motivated the plantation owners to call for coercive legislation. President Barrios responded in 1871 by grouping plantation labourers into "squadrons" firmly under the control of landowners. This was followed by the first comprehensive rural labour law: the *Reglamento de Jornaleros* (Day-Labourers Statute) in 1877; and the "Anti-Vagrancy Law" in 1878. These laws legislated that all able-bodied men carry a passbook that contained assessments of their honesty, productivity, and solvency. Those found without the passbook were fined, and if without cash (as invariably most were), they were forced to work off their debts on public work projects.

Faced with the continual threat of either being drafted into the military or into construction battalions for public works, many Indians opted for the relative "security" of indebtedness to one or more export plantations. The way in which many *campesinos* became indebted to plantation owners was through renting land on the highland *fincas de mosos*, or "workers plantations." These highland farms were bought by plantation owners and rented by their agents to local farmers. Those who worked these plots were obligated to do seasonal work on coffee plantations as part of their rental agreement. This did not result in highland inhabitants

losing land, but changed the conditions of access (McCreery, 1990:107).

By the beginning of the twentieth century, a new situation had begun to emerge. Labour supply began to outgrow demand, especially during the world crisis beginning in 1929. Coffee growers began to foresee the possible establishment of a free labour market (i.e., the excess supply of labour had driven wages down to what plantation owners considered affordable). Population growth, overcropping and soil erosion had produced a surplus population without sufficient resources in the highlands (McCreery, 1986:113-114). Labour legislation, in turn, reflected this impoverishment of the highland peasantry as the state was no longer needed to mobilize an increasingly impoverished labour force. By 1945, under a reformist administration later overthrown by the United States (Schlesinger and Kinzer, 1983), capitalist relations finally came to dominate commercial agricultural production in Guatemala. Workers were still subjected to violence. At this point in time, the primary goal of repression was not to create a work force as was done previously, but to keep wages depressed by preventing workers from taking collective action.

The practice of land expropriation was further extended during the subsequent cotton (Pacific littoral⁴⁰) and cattle booms (northern lowlands) in the 1900s (Williams, 1986). Beginning in 1975, peasants were removed by repressive means in the Northern Transversal Strip (FTN)⁴¹, or the "zone of the generals," so named because most of the land in the region was claimed by people of high military rank. The Indians who had farmed the region for centuries were removed to facilitate access to the underlying mineral and petroleum wealth, and the abundant yet poor pasturage (Handy, 1984:218-222). Stern yet peaceful peasant resistance in this region was put down at the Panzos massacre in 1978, where over 100 peasants were killed. This was an atrocity that symbolized, among other things, the powerlessness of small farmers.

2.3 ESTIMATES OF MIGRATION VOLUMES

Migratory labour from the subsistence highlands to the lowland plantations grew to constitute the base of Guatemala's agro-export system. Sometimes referred to as a

⁴⁰ This land on the southern coast was turned into what a Guatemala planter described to a New York Times reporter as "the richest farmland in the Americas" (cited in Handy, 1984:201).

⁴¹ The NTS is a strip of land which crosses Guatemala's mid-girth. It includes the northern parts of the departments of Huehuetenango, El Quiché, Alta Verapaz and Izabal.

"dualist" agricultural system,⁴² large portions of both components became, on the contrary, mutually dependent on each other. Much has been written about the injustice of Guatemala's migratory labour system (Schmid, 1967; Riding, NYT 27/3/78). The lowland plantations were hot and humid with endemic diseases. Working conditions were, and continue to be, intolerable. In some cases, even when high wages were offered, Indians refused to risk their lives in the lowlands (McCreery, 1986:104).

Little research has been focused on the magnitude and importance of plantation labour to the highland inhabitants. Carol Smith (1984b), using historical census data, has been one of the few to address these critical issues. Based on rural market activity, she defined a core area (Totonicapan) and a periphery region (Huehuetenango, El Quiché, and San Marcos, see Figure 1.2). Between 1893 and 1921, Guatemala's first and second population censuses, the core area lost most of its natural increase of 46 percent to what Smith maintains was the tendency at the time for workers to settle on the newly created plantations.⁴³ Over the next census

⁴² With the advent of labour-saving mechanization on Guatemala's Pacific coast and herbicide-resistant crops, we can now envision a true dualism, or mutually independent small and large farm systems. Without alternative income-earning opportunities, small farmers will be further impoverished.

⁴³ The author felt that it was "reasonably safe" to consider that most of the population changes were directly affected by the growing plantation economy rather than other

period (1921-1964), the nation's most significant population growth rates occurred throughout the western highlands.

After 1945, the majority of labourers for plantations were contracted on a seasonal basis. Half of the adult population of peripheral regions worked on the plantations three or four months (Smith, 1984b:66), keeping this population at home for eight or nine months of the year.⁴ The core regions, by contrast, had drastically reduced the number of inhabitants sent to the plantations. Since the 1970s, Smith (1984b:92) has estimated that the core groups have sent less than 10 percent of their adult work force to the plantations, whereas the periphery region has sent more than 60 percent.

The inhabitants of Smith's rural core group of highland departments, which in her broader definition includes

factors, such as urbanization, fertility or morbidity (Smith, 1984a:65).

⁴ Bossen, citing Gordon D. Brown (1984:28) asserts that in the late 1970s, a conservative estimate of seasonal migrant workers and their dependents coming from the western highlands as a whole would be approximately 1,500,000 persons, or 25 percent of the country's total population. A mid-1960 estimate of migrant workers involved in the seasonal harvest by Humberto Flores Alvarado (1970:134-135) was a low 275,000 individuals. Lester Schmid (1967) gave an estimate for the same time period that was closer to one million. An early 1980s estimate of 600,000 - roughly equivalent to USAID's 500,000 (1984:1) - was called the largest proportional stream of migratory labour to be found in the world (Jonas citing Wickham-Crowley, 1991:96-97).

Quezaltenango, Sololá and Chimaltenango -- and I would argue Sacatepéquez,⁴⁵ were able to move into the gaps created as the *ladinos* responded to the opportunities opened by coffee and international trade in the late nineteenth century. The "core" population was able to take advantage of their early experience (1893-1921) -- saving money or vowing never to return to the plantations -- and establish petty commodity trade that has given them a great deal of independence from the migratory\subsistence predicament. The trade's expansion or restriction, however, remained tied to the fortunes of the plantation economy.

The expansion of coffee, cotton and sugar plantations on the Pacific coast during the 1960s and 1970s, as well as changes in the labour structure, created a renewed demand for cheap labour. Stable full-time work was reduced in favour of further "semi-proletarianized" labour, or migratory labour from highland subsistence plots. This has been described as a means of transferring seasonal unemployment to the *campesino* sector in the highlands (Jonas, 1991:97). *Fincas de nozos* were further expanded in the highlands. Although the military were known to recruit by force on behalf of

⁴⁵ Sacatepéquez, the department where the present case study is located, was probably omitted by Smith because it is not easy to characterize; it is a small department under the influence of three major cities: Guatemala, Antigua and Amatitlán. Parts of Sacatepéquez are adjacent to the urban periphery.

plantation owners, coercion was not necessary as continued poverty in the peripheral highlands, and the work of the labour contractors, were sufficient to draw adequate numbers to the coast (Handy, 1984:206). Labour was available despite the fact that plantation work, still arduous and done under intolerable working conditions (Riding, NYT 27/3/78), was generally avoided by all who could subsist by other means.

Wages nominally remained the same for close to two decades until the sugar workers' strike of 1980 (Handy, 1984:207). When factoring in inflation, however, rural workers earned in 1979 54 percent of the real wage they had earned in 1970 (Bulmer-Thomas, 1987:219). Stagnation of labourer salaries was linked directly to the gradual break down of the pattern of capitalist exploitation established after 1945 (Black et al., 1984). The export sector's labour needs began to diminish with the effects of mechanization and the substitution of chemicals, such as herbicides, for human labour⁴⁶. Even at wages lower than subsistence, available labour could not be absorbed by the plantation sector.

⁴⁶ The Overseas Development Council estimated that between 1930 and 1975 Guatemalan growers of coffee, bananas, and sugar were able to reduce their labour needs by 50 to 75 percent (cited in Lappé and Collins, 1977:28).

2.4 HIGHLAND SOCIO-ECONOMIC TRANSFORMATION FROM THE 1960s

There were also various "push factors" that made highland labour more plentiful. These included an average population growth rate of three percent per year (Jonas, 1991:95), and the increased penetration of capital, which transformed the inhabitants and increased their dependence on western technologies and external employment opportunities. Post-1954 economic expansion and growth, together with its necessary transportation and communication improvements, further broke down the traditional isolation of the highland communities.

Economic diversification and agricultural modernization brought about by the Central American Common Market (CACM) and development programs (initiated by the United States' Alliance for Progress) opened opportunities for highland residents in tourism, artisan production, and technological modernization. Cooperatives, established by religious missionaries, challenged principals' (elders) control of villages, and more important to the present context, introduced their memberships to new structures of credit and savings, as well as chemical fertilizers (Arias, 1990:232-233). A gradual dependence on fertilizers and further integration into the money economy was established as small farmers increased the production of agricultural commodities for urban centres (Gustavo Porras quoted in Arias,

1990:235). The size of the milpa was reduced in favour of commercial crops, diminishing the symbolic relationship Mayans had with their farm systems. Community structure was further "redefined" as educated youth began to challenge the authority of the traditional community elders.

Much of these economic transformations raised Indian expectations beyond what the government was able to fulfil. Macroeconomic indicators, as mentioned in the previous chapter, suggest that the Guatemalan economy was able to withstand the first international oil shock in 1973. This was not the case in the highlands. The price of petroleum-based chemical fertilizers increased from Q2.85 to Q18.00 per 100 pound bag. The crisis weakened the national and Central American markets for fruits and vegetables coming from the Guatemalan highlands (Arias citing Ja C'Amabal I'b, 1990:240-241). Small-farm bankruptcy prevailed throughout the highlands, and many cooperatives became indebted to banks or development agencies. Much of the land was taken over by a tiny minority of Indians, reinforcing class differences by strengthening the incipient Indian bourgeoisie.

2.4.1 GOVERNMENT RESPONSE TO THE CRISIS IN THE HIGHLANDS

The experience of meaningful land reform⁴⁷ during the 1944-1954 capitalist revolution threatened the existence of the agrarian elite and left its mark on subsequent development initiatives after the downfall of Guatemala's only reformist government. Once expropriated lands had been returned to their pre-revolution owners, the succession of military rulers were unified in their claims that Guatemala's problem was not land distribution but land shortages. Land reform was indefinitely shelved in favour of "land transformation," whose key policy was frontier land settlement. Major post-1954 rural aid projects, the most extensive of which were land colonization and token land distributions, reflected these principles. Limited USAID-funded gestures were made to respond to the surplus of underemployed and unemployed highland inhabitants. These government responses to the economic upheaval in the highlands, far from enhancing rural well-being, have produced very few tangible benefits for the intended beneficiaries.

⁴⁷ The Jacobo Arbenz government (1952-1954) was able to distribute 603,615 expropriated hectares and 101 national plantations to approximately 100,000 families (Melville, 1986:10).

Land colonization began on the Pacific coast in the early 1960s.⁴⁸ Many small-farmer beneficiaries had to bear the cost of inappropriate government direction, such as mechanized land clearing, whereas those without capital rarely received credit or extension services. The smallholders rapidly became indebted and their land passed to large-scale agrarian capitalists. A large portion of the former beneficiaries became the labour force (Hildebrand, 1962, 1963, 1966). The region has subsequently become the prime source of basic grains and export crops (maize, cotton, sugarcane and cattle). Colonization schemes in the El Péten had similarly poor results (Melville, 1986).

In the 1970s, the focus of colonization schemes became the Northern Transversal Strip (NTS). The government, with substantial USAID assistance, based its plans on the work of Maryknoll missionary priests, who had successfully managed, with very few resources, to relocate 1,500 families from the "overcrowded highlands" to northern Huehuetenango (Manz, 1988a:127-131). A spontaneous colonization effort near the oil exploration fields in Sebol, Alta Verapaz, was also praised for the robust nature of its colonizers (ACDI, 1982:1-2).

⁴⁸ Melville (1986:10) suggests that many of these 15 hectare plots went to relatives, friends, secret police and military colleagues.

USAID developed a pilot colonization area in the Ixcán, northern El Quiché province (Northern Transversal Strip Land Resettlement Project, No. 520-0233 Small Farmer Development, ACDI, 1982), which was expected to provide information for further settlement expansion throughout the NTS. The counterinsurgency war (Manz, 1988a:132-144) and the greed of the land-coveting military⁴⁹ -- together with their role as a stabilization force (Maloney, 1982:422-423) -- put a formal end to this USAID/government of Guatemala vision. The short experience of this colonization scheme demonstrates the fallible nature of USAID-supported projects. It is also a salient case in point that demonstrates the pitfalls of basing prosperity on the production and marketing of a single, seemingly valuable export crop, cardamom spice. The attraction of this export opportunity was strong. Even after the demise of the project, peasants continued to grow cardamom throughout the region, with disastrous results.

2.4.2 THE CARDAMOM CAPER

Guatemala entered the cardamom spice market in the 1970s due to disruptions caused by natural disasters in India. By

⁴⁹ By 1979, the rest of the NTS had been claimed and turned into large tracts of farmland (primarily cattle ranching). Senior and retired army officers were among the main beneficiaries, including then military chief of state Lucas García (33,000 ha), his minister of defence General Otto Spiégeler, former military ruler Carlos Arana Osorio, and Han Laugerud, brother of yet another former military president (LAER, 26\01\79).

1986, before non-traditional vegetables had reached their current level of prosperity, cardamom became Guatemala's most successful non-traditional export crop as the nation became the world's dominant producer, accounting for 60% of world production (Barry, 1989:71). Some cooperatives in the Ixcán reported receiving Q500.00 per 100 pound bag (Manz, 1988b:76). When the fortunes of cardamom were rising, USAID and its Care partners promoted the spice as an appropriate venture for NTS colonizers whose profits were expected to pay for the land-purchasing debts as well as pay for the subsistence needs of the inhabitants (ACDI, 1982:35). Marketing difficulties, such as the lack of roads and cooperative support, ensured that farmers were paid well below market value for their crops. The price paid for raw beans locally was Q55 per 100 pound sack⁵⁰ in nearby but inaccessible Cobán, or Q1,485 internationally (Tejeda, 1986). Those that managed to make a living in these harsh lowlands -- and survive the brutal counterinsurgency war that swept through the region in the early 1980s -- were devastated when the bottom fell out of the market as Saudi Arabia, importer of over 90% of Guatemala's production, responded to the recovery of Indian production and better prices from African producers (CAR, Feb.12, 1988:44).

⁵⁰ In 1985, Manz (1988b:138) reports that cardamom was selling for Q75 to Q80 per 100 pound bag in the Ixcán.

Guatemalan farmers conducted no business in 1988. Small farmers were left with an inedible export crop.

The lessons from cardanom colonization in the Ixcán are twofold: the peasantry is highly vulnerable to impersonal market forces, especially export crop price fluctuations. It also demonstrates the incompetence of USAID. Soil surveys, the foundation of well planned and well executed agricultural settlement, were not conducted. The NTS soils were known for their limited agricultural potential and fragility. A study of the region claimed that a meagre 7 percent of the land was fit for permanent crop cultivation, 35 percent was suitable for cattle ranching, and the remaining 58 percent of the fragile tropical soils was fit for permanent vegetation only (LAER, 26\10\79). Moreover, the institutions contracted by USAID to oversee land surveying and credit distribution -- the Institute of Agricultural Transformation (INTA) and the Agricultural Development Bank (BANDESA), respectively -- were widely known to have anti-peasant biases.

2.5 CONCLUSIONS

Although there were regional differences, coffee and the gradual penetration of the money economy changed land and labour relations in Guatemala's highlands irreversibly. Within a few decades, the establishment of the latifundio

\minifundio system cost Indians about half of their land, subjugated many of them to plantation labour and, as a result, began to erode their capacity to live in isolation. Repressive means of appropriating land and labour surfaced cyclically, often rising with the fortunes of a particular export crop. However, internal highland processes -- subdivision, soil degradation and population growth -- equally contributed to the increasing mass of landless or near landless inhabitants who sought opportunity beyond subsistence farming. The resulting oversupply of labour drove wages down to below the level needed to support highland families.

Traditional communities began to break down in the twentieth century in terms of the social hierarchy and farming practices. Those who were able to continue farming became more reliant on technological inputs -- especially chemical fertilizers -- as they increased their market output. The international oil shock of 1973 revealed the vulnerability of small farmers to costly petroleum-based farm inputs. The resulting bankruptcies had the effect of increasing landlessness and boosting land concentration.

To lessen the effects of this crisis and the general highland predicament, the government and international donors offered a number of rather dubious and small-scale

development schemes. These were poorly conceived and limited in scope: relocating peasants to the far off periphery to grow export crops with insufficient preparation seems more token than genuinely developmental. These projects were harmonious with the ruling coalition's alternative to land reform, land transformation, or cosmetic not meaningful change to the country's skewed tenure system.

The landed oligarchy has been able to capitalize on all of the export booms to date. They have been particularly successful at procuring the most suitable land resources for any booming export crop. The coffee, cattle and cotton booms were all heralded by the confiscation of lands claimed by Indians. The introduction of vegetables to the highlands as a promising export endeavour raises the perception of the worth -- and the real monetary value -- of these relatively unattractive lands. This heightens the likelihood of expropriation of *minifundios* by wily entrepreneurs eager to compensate for lost revenue from their slumping lowland plantation crops⁵¹ (This Week, 6\11\89).

⁵¹ This possibility is further heightened as the traditional system of ensuring ample labourers in Guatemala diminishes in importance. As plantations increasingly mechanize, the system whereby farmers in the highlands are forced by insufficient subsistence land (and sometimes debt) to migrate annually to cotton and coffee plantations is quickly becoming redundant. Thus it may not be in the interests of the capitalist\military ruling class to maintain the status quo in the highlands.

Furthermore, the existing highland status quo is not serving the interests of the business class in Guatemala. The need for highland labour is becoming less integral to the lowland plantation system⁵². By the 1980s, highland villages were viewed as liabilities rather than reserves of cheap labour. Not only did this precipitate widespread violence in the highlands (1979-1982) but it also reinforced the contempt felt for highland agricultural practices and the drive to replace them with scientific systems. This is the agrarian context into which export vegetables have been introduced.

⁵² Smith (1990:29, footnote No.14) claims, contrary to general opinion, that the majority of Guatemala's current plantation labour comes not from the western highlands but from eastern Guatemala, the southern coast resident workers, and El Salvador.

2

PM-1 3½"x4" PHOTOGRAPHIC MICROCOPY TARGET
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CHAPTER 3: GARDENING GUATEMALA: THE EXPERIENCE TO DATE

Those Indians up there will bury us in cauliflower if we let them. (ALCOSA's CEO, Victor Schultz cited in Kusterer et al., 1981:20)

USAID has historically played a pivotal role in the economic development of Guatemala (Barry and Preuch, 1988). The USAID mission to Guatemala is by far the largest and most influential aid agency in the country, having advisors very close to the top officials in the economic and agricultural planning ministries. The agency has numerous aid projects throughout the countryside through which it aims to reduce rural poverty. By its own admission, however, the Guatemala USAID mission has found itself unable -- despite years of trying -- to reverse the dismal social trends prevalent in the rural countryside (Smith, 15\12\89).

USAID is the driving force behind the promotion of export vegetables in Guatemala. The mission foresees the development of a fully integrated export industry with forward and backward linkages where peasant farmers form the bulk of autonomous or cooperative producers. This chapter outlines USAID's role in the promotion of horticulture in Guatemala. This legacy spans the early experimental phases, the proliferation of many processing and exporting houses, and smallholder support projects. It focuses on the

accomplishments and failures of externally funded cooperatives, and one group who farm independently.

3.1 EARLY STUDIES AND RECOMMENDATIONS

In 1965, the USAID mission to Guatemala hired a horticulturist to survey the state of Guatemala's vegetable industry, and to assist the government in designing a research and extension program to invigorate vegetable cultivation. The horticulture consultant, Charles Atlee, discovered that few officials in the Guatemalan Ministry of Agriculture had recognized the potential of "...the rich horticultural resources with which this country had been blessed" (Atlee, 1968:i). Most of Atlee's efforts were directed towards the tropical and sub-tropical climates (below the 1,500 metre contour) where the bulk of vegetable production took place at that time. The consultant's major recommendation underscored the Pacific coastal plain, still the country's largest cotton and sugar production area, as the best area for further expansion of vegetable cultivation due to fertile soils and ample rainfall.

Prior to Atlee's study, most vegetables marketed outside their production zones were sold in the capital city or other Central American countries. Few private sector experiments had taken place with vegetable production for export to the U.S. Early trials involving growing and

exporting suffered from a variety of factors, such as poor transportation networks, a lack of marketing and production knowledge, and poor handling procedures. Produce was often below the standards set by external markets.

In 1970, horticulture was examined in another USAID-commissioned report -- this time authored and published by four University of Iowa economics professors (Fletcher et al., 1970). Commissioned to produce short- and medium-term agricultural policy options for the Guatemalan government, Fletcher et al. prioritized the enhancement of producing and marketing of maize, a basic staple, and other vegetables for export. The authors lamented the overall poor quality of Guatemalan-produced vegetables, which evidently had not significantly improved since Atlee's report. High production costs were given as the greatest limiting factor to increasing exports.

Whereas Atlee had emphasized expanding vegetable production in tropical and sub-tropical climates, areas generally partitioned into large **latifundios**, Fletcher et al. shifted the focus to the **minifundio**-dominated temperate highlands. Aware of the vulnerability of indigenous inhabitants, Fletcher et al. advised that producer organizations be formed with a complementary national marketing scheme. Such producer groups would simplify the dissemination of

technical information, farm inputs and marketing services (Fletcher et al., 1970:204). Many profitable market opportunities existed for Guatemalan temperate-climate vegetables according to the authors. On the production side, no other Central American country had the wide variety of micro-climates found in Guatemala. If the resource base was used to its full potential, the authors affirmed, Guatemala could supply large markets in the United States.

3.2 LAAD AND ALCOSA

Acting on the recommendations of these two commissioned reports and similar indications from across Latin America, USAID's Regional Office for Central America and Panama (ROCAP) made the first of two loans to the Latin American Agribusiness Development Corporation S.A. (LAAD) in 1971. LAAD is a major consortium of transnational corporations⁵³ created to finance and develop non-traditional agribusiness enterprises in Latin America. The ROCAP-subsidized loans to LAAD's Central American subsidiary, totalling U.S.\$11 million, have made USAID the corporation's largest source of capital.

⁵³ Organized by Bank America, LAAD corporate shareholders in 1984 were Adela Investment, Bank America Intl. Finan. Corp., Bordon, Cargill, Castle & Cooke, Caterpillar Tractor, Chase Manhattan, CPC Intl., Deere and Co., Gerber Products, Goodyear Tire and Rubber, Mellon Intl., Holdings Corp., Monsanto, Rabobank Curacao, Ralston Purina and Southeast Bank (Barry and Preusch, 1986:156).

In Guatemala, LAAD financing, in turn, helped establish Alimentos Congelados Monte Bello S.A. (ALCOSA), which began a frozen and canned fruit and vegetable operation. In the late 1970s, ALCOSA was purchased by Hanover Brands Inc., an American vegetable processor and distributor. With additional LAAD funding, the plant was expanded and retooled to process large quantities of a few specific vegetables for the U.S. market. The operation's raw materials -- brussels sprouts, cauliflower and broccoli -- were first grown on large tracts of land leased by the company, employing as many as 400 farm labourers. These initial efforts at crop production proved unsuccessful. These labour intensive vegetables were found to have rapidly decreasing returns as the scale of production increased. In response, ALCOSA began contract farming.

The first group of outgrowers possessed middle-sized farms that measured between 20 and 40 hectares. The inexperience of these farmers led to low productivity and an inability to meet product quality standards (Kusterer et al., 1981:14). Consequently, ALCOSA shifted to even smaller farmers located in the western highlands. These farmers proved to be extremely ambitious individuals and by far the most effective production unit ALCOSA had hitherto encountered. By 1980, ALCOSA was collecting crops from approximately 2000 farmers at 17 buying stations in the highland departments of

Chimaltenango, Sololá, Guatemala and Sacatepéquez. Ninety-five percent of these crops were contracted from "very small" farmers with landholdings that measured from 0.13 to 0.44 hectares (Kusterer et al., 1981:59).

In July, 1980 ALCOSA suspended its contractually obligated purchases of produce from highland farmers because of a flood of produce from an unforeseen bumper crop. In its defense, ALCOSA claimed that it had no choice because continuing to buy would have led to certain bankruptcy. However, the multinational's business practices were also to blame. In an attempt to remedy its chronic undercapacity, field staff were instructed to "... go all out in the most rapid possible expansion of the broccoli program in the highlands" (Kusterer et al., 1981:19). Between March and May 1980, they doubled the number of contract farmers by adding more than 1300 new outgrowers. Cancelling contracts with medium and large farmers would most certainly have been more difficult.⁵⁴ Although this may have been legitimate shortsightedness, this kind of exploitive flexibility can also benefit agro-industries by putting the burden of the

⁵⁴ A large-scale farmer, Sñr. Pastor Roldang, grew cucumbers with much USAID assistance in the 1980s. When his cucumbers were legitimately returned due to their sub-standard quality, the outraged businessman began a long-standing campaign to "kill" his USAID advisors. Such threats are taken seriously by USAID, and demonstrate that large growers have access to more than legal recourse when feeling deceived (Gallegos, 16\12\89).

business cycle on the small farmer. After its short-term crisis, ALCOSA continued to do business without compensating the farmers with whom it had broken contracts⁵⁵.

3.3 USAID SUPPORT PROJECTS IN THE 1980s

Despite this and other obvious shortcomings, USAID deemed ALCOSA an attractive model, not only because of what it considered the heartening small-farm response but also for ideological reasons. The Reagan administration's intentions to involve the U.S. private sector in the business of foreign assistance was given added integrity by the success of companies like ALCOSA. M. Peter McPherson, USAID's administrator at the time, expounded on USAID's policy reorientation in Business America (quoted in duPont, 1982:3). The rationale was based on the conviction that economic development in developing countries was largely the by-product of free markets in goods and services. USAID's role in this context, according to McPherson, was largely that of a catalyst. USAID's role in the success of ALCOSA adeptly captured the agency's newly stated direction. Not only was the company the branch plant of U.S. Hanover Brands, but also it had been financed with corporate funds (i.e., LAAD), and had received technical assistance from

⁵⁵ Farmers claim that many agro-industries, such as Consolidada, have at one time or another refused to pay for agreed-upon qualities of delivered vegetables. Perhaps ALCOSA set a precedent for agro-industry operations in the highlands.

American consultants. As a major financial backer, USAID was largely responsible for this outcome.

Many USAID mission officials recognized that ALCOSA had been successful in establishing a mutual dependence between small farmers and the country's entrepreneurial class. Rather than the usual antagonism between small farmers and business, this venture established a mutually favourable working relationship. Linkages based on a business venture were consolidated, giving each party a vested interest in the social and economic well-being of the other. This was essentially a technical solution without socio-political accommodation, and commensurate with what USAID had envisioned for establishing much-needed social harmony in Guatemala. If the comparative advantages enjoyed by small farmers were encouraged with external assistance, USAID calculated that rural well-being could be improved as small farmers created a distinctive economic niche for themselves.

In the wake of ALCOSA's achievements, numerous USAID projects were implemented in the late 1970s and 1980s with the purpose of strengthening vegetable production and marketing. Agribusiness Development, AID contract number 520-0276, by far the most exhaustive program to date, directly sought to overcome the major impediments to establishing a vertically integrated vegetable industry in

Guatemala. Other projects that contained components that impacted on the vegetable drive included Rural Enterprises Development (520-0245); Small Farmer Marketing (520-0238); Small Farmer Diversification Systems (520-0255); and Highlands Agricultural Development (520-0274). Small Farmer Marketing provided loans for new or expanding vegetable processing plants. Highlands Agricultural Development was designed to assist small-scale producers through soil conservation and miniature irrigation systems. The intention of Small Farmer Diversification Systems was to strengthen the public agricultural sector's capacity to help small farmers diversify into higher value crops. Agribusiness Development's stated purpose was "...to provide small farmers with profitable outlets for their fruit and vegetable production..." (USAID, 1984:8). According to USAID, the project conformed with Washington's guidelines that Economic Support Funds (ESF)⁵⁶

...be made available only for the development activities aimed at improving the lives of the poor, especially the indigenous population in the highlands (USAID, 1984:iii, my stress).

⁵⁶ According to the State Department, ESF "... is used to promote economic and political stability in regions where the United States has special security interests, and promote peaceful solutions to international problems which affect US interest, national security, and achievement of foreign policy objectives" (cited in Barry et al., 1988:96). In 1982, the U.S. Congress allocated U.S.\$10 million of ESF funds to Guatemala.

These goals were to be reached by enhancing marketing and processing capacity through private industry development. The project was broken down into three components: the expansion of rural agribusiness enterprises, cooperative strengthening, and marketing and information.

Under the project's first component, U.S.\$8.8 million was made available for a credit scheme whose purpose was financing fixed assets, working capital and feasibility studies for private and cooperative agribusiness entities. The largest share of credit (U.S.\$7.3 million) was destined for individual entrepreneurs through the private banking system. Small farmers were expected to benefit indirectly from entrepreneur credit through the establishment of contract-farming agreements, somewhat like the ALCOSA example.

The remaining allotment of U.S.\$1.5 million was to support a small farm credit scheme. It was channelled through the National Bank of Guatemala (BANDESA) despite the bank's well-known history of withholding credit from small farmers (USAID, 1984:6). Half of this money was to go to at least 10 cooperatives to assist them in the expansion of their physical facilities for collecting, grading, storing and semi-processing agricultural products. This "production-marketing" integration was expected to broaden market

options (one single corporate buyer was considered the primary setback of the 1980 ALCOSA experience), and thus reduce small farmer risk and result in "producer-led investment and development" (USAID, 1984:17). The other half of these funds would be devoted to production credit (labour and input costs) for agricultural cooperatives and small-farm groups who were expected to supply multinational agribusiness enterprises.

The second component -- approximately U.S.\$1.1 million -- addressed cooperative improvements. A grant was allocated for hiring a private U.S. consulting firm to provide technical assistance to small-farmer cooperatives. Additional grant monies were set aside for specific areas of emphasis, such as management (including a salary-support program for contracting short-term technical assistance), improved production, and post-harvest handling.

The third component targeted marketing through large-scale stimulation of the Non-Traditional Products Exporter Guild (GEXPRONT), commonly referred to as the Gremial. The Gremial was founded in 1982 to represent the interests of non-traditional product exporters in the national and international arenas. Its activities have been broad. They include lobbying government to remove export obstacles, motivating entrepreneurs to become exporters or investors,

promoting Guatemalan exports in international trade shows, recommending qualified U.S. and European brokers to Guatemalan exporters, and providing its membership with commodity trends and forecasts.

The financial allotment to the Gremial was U.S.\$0.56 million. These funds supported the creation of a statistical data system and a documentation centre. Also created was an Export and Investment Promotion Activity, or a system of market searches and investment promotion. USAID support continued into the late 1980s with an additional loan of U.S.\$3.5 million (CAR, 02\02\88). Of course, to recouperate the loan money the guild had to make a profit. This was not achieved through serving small farmers.⁵⁷

Agribusiness Development has been criticized for being oblivious to the vital weaknesses brought about by ALCOSA's contract farming, many of which were clearly evident in the USAID-sponsored 1981 report by Kusterer et.al. (Moe, 1989:82-87). The report's authors rigorously documented the diverse nature of farmers, locations, and market conditions, as well as ethnic tensions and graft. Without regard to these intricacies, the USAID project paper produced "blanket recommendations" based to a large degree on what was

⁵⁷ A number of cooperative leaders questioned confirmed that they did not make use of the GEXPRONT's services as the annual membership fees were too costly.

referred to as the rising fortunes of two cooperatives: Quatro Pinos in Santiago, Sacatepéquez, and Kato-ki in Chimaltenango, Chimaltenango.

3.4 USAID-ASSISTED COOPERATIVES AND ASSOCIATIONS

3.4.1 KATO-KI

In 1983, USAID claimed that Kato-ki, which at 1000 members had four times the membership of Quatro Pinos and exported twice as much produce (0.9 million kilograms), was "... perhaps the country's most advanced cooperative serving small farmers" (USAID, 1984:17). By the mid-1980s, however, Kato-ki's business enterprise had begun to falter. An internal report commissioned by the Cooperative League of the United States of America (CLUSA)⁵⁸ attributed Kato-ki's misfortune to its unsuccessful experience with export vegetables. Ivo Kraljevic, contracted by CLUSA to identify the socio-cultural obstacles to cooperative development, discovered that, among other vegetable-related difficulties, Kato-ki was left with a U.S.\$140,000 debt after a U.S. broker had failed to pay for four refrigerated container shipments of snow peas (Kraljevic, 1989:30-31). It is not clear from the evidence whether USAID had recommended this broker as it had for other cooperatives. Until this disaster, however, Kato-ki had resisted USAID\CLUSA

⁵⁸ CLUSA was the agency contracted in 1986 by USAID to oversee the cooperative strengthening element of Agribusiness Development.

managerial assistance. In July 1989, the cooperative capitulated to CLUSA pressure and hired a full-time manager (from outside the community) to handle the production and export of vegetables (Kraljevic, 1989:31).

3.4.2 QUATRO PINOS

The Quatro Pinos cooperative in Santiago, Sacatepéquez, USAID's other model for Agribusiness Development, has continued to grow and become more sophisticated and is now earning the reputation as Guatemala's most advanced small-farm producer organization. This is largely due to its particular historical and geographical location. Santiago is located about 20 kilometres west of Guatemala City, just outside of the urban fringe. It has had a long history of furnishing urban markets with vegetables produced on its small, intensively farmed plots. After suffering substantial damage due to an earthquake in 1976, the community benefited from a long-term reconstruction and development program sponsored by a Swiss non-government organization, Swiss Group. The agriculture program began by concentrating on maize and traditional vegetable improvements.

In 1978, Swiss Group, acting on behalf of Santiago farmers, secured a contract to grow broccoli and cauliflower for ALCOSA (IFPRI, 1989:29). The Quatro Pinos cooperative was formed a year later, largely as a result of the favourable

returns from contract farming. Unlike any other cooperative in the highlands, Quatro Pinos rapidly organized itself and limited its dependence on ALCOSA by providing its own transportation, member coordination, administration, sorting and technical assistance. An "arms-length" relationship, as such, is the ideal contract-farming arrangement as has been suggested in Chapter 1. When ALCOSA suspended its purchases from all other small farmers in 1980, the Quatro Pinos outgrower contract was the only one honoured. Such good fortune has been attributed to this well-disciplined group's high degree of growing skills and the powerful lobbying clout of its Swiss advisors (Kusterer et al., 1981:62; IFPRI, 1989:29). Within a year, Quatro Pinos began to export a portion of its produce directly to the United States. By 1987, through the construction of its own freezing and processing facility, Quatro Pinos became a fully developed production and export enterprise, exporting U.S.\$4.0 million of fresh vegetables, or 20 percent of the total value of fresh exports from Guatemala that year (Kraljevic, 1989:32). The cooperative also diversified its markets by exporting 20 percent of its produce to Europe (IFPRI, 1989:29). At this point, USAID assistance to Quatro Pinos became highly technical, provided by short-term consultants (Kraljevic, 1989:33).

The key to Quatro Pinos' success, not mentioned in the IFPRI study (Braun et al., 1989), was the cooperative's autonomous group of technocrats and its highly regarded technical director, Tulio García. This group of professionals managed and directed the cooperative's activities much like a business venture. Furthermore, García's leadership qualities are legendary in Guatemala. He has managed to combine a high degree of technical competence with a sensitivity towards the cooperative's majority of Cakchikal Indians (Fletcherjohn, 14\12\89). Without this team of technicians, the Quatro Pinos cooperative would not be able to function (Kraljevic, 1989:6). Interestingly enough, even though cooperative members benefited substantially from increased incomes and community services (education, health, housing and land purchasing assistance programs), Kraljevic (1989:33) reported that members felt increasingly isolated from the enterprise. He felt this tension was strong enough to divide the cooperative and suggested that it be addressed.

3.5 KNOW-HOW, MANAGEMENT AND ADMINISTRATION GAPS

Perhaps the biggest condemnation of smallholder vegetable production is ironically found in the pages of the CLUSA-sponsored study by Kraljevic (1989). In addition to Quatro Pinos and Kato-ki, Kraljevic also evaluated three other USAID\CLUSA-funded cooperatives: **Cooperativa Agrícola**

Integral Rincón Grande in Chimaltenango, and Cooperativa Agrícola Integral Chican and Asociación de Agricultores de Aguacatan, both located in the northern department of Huehuetenago. Informal conversations -- and my own contact⁹⁹ -- suggested that CLUSA was in search of additional exporting cooperatives, but only those deemed "successful," to justify its role and thereby retain its cooperative strengthening contract with USAID.

The objective of the CLUSA\USAID assistance was to establish financially and managerially self-sustaining cooperatives. The major obstacles preventing small-farmer organizations from realizing these goals, according to Kraljevic, was

... the wide gap between the managerial, administrative and technical skills needed to run these organizations and the level of skills their members have. The gap becomes especially dramatic in organizations involved in the production and export of fruits and vegetables to highly competitive international markets.
(Kraljevic, 1989:4)

CLUSA guidelines defined the necessary skills needed by cooperatives to run a competitive export business. These included the ability to carry out market research; mastering

⁹⁹ This fact was reinforced in my interview with John Sandbach (26\02\90), CLUSA's director. After finding out that I was researching Magdalena's successful cooperative, and thinking that I might have some influence, Mr. Sandbach suggested that I should try to convince the leadership of the cooperative that they were in need of CLUSA's technical assistance.

export-quality production; quality control and equipment maintenance; the ability to set up and maintain managerial and financial systems; and advanced financial analysis, including feasibility studies and evaluations of debt loads (Kraljevic, 1989:4-5). The probability of this expertise emanating from among the membership of the five cooperatives studied was very small. All were made up of members who had no more than a few years of primary education. Some were illiterate and most spoke Spanish as a second language.

Kraljevic's analysis underscores the low level of education throughout the highlands and the well-known lack of marketing know-how among cooperatives. This has always been one of the major barriers to cooperativism in Guatemala (COPAC, 1984:18). It has been estimated that as few as 22 percent of Guatemalan agricultural cooperatives⁶⁰ understand and utilize rudimentary commercialization skills (COPAC, 1984:18). The poor level of education and know-how is especially critical when these cooperatives become involved in the production and export of vegetables to highly competitive international markets. Despite the complacency of some consultants who suggest that management can be

⁶⁰ The National Institute of Cooperatives (INACOP) estimates that there are roughly 198 functioning agricultural cooperatives in the western highlands (COPAC, 1984:20). Apart from vegetables, most of these organizations specialize in maize, coffee and wheat, all of which prove unprofitable for smallholders by virtue of low prices or a lack of sufficient land (1984:17).

trained from within in the "short and medium" term,⁶¹ Kraljevic estimates that as many as ten years are needed to sufficiently train management personnel from the pool of poorly educated cooperative members (Kraljevic, 1989:5). This time frame is corroborated by Mario Morales-Santos, a consultant who studied the prospects of the Acualá agricultural association (Morales-Santos, 1988:10). Leadership of the type required to coordinate all of the necessary activities outlined by CLUSA, Kraljevic maintains, is never likely to develop from within the communities (Kraljevic, 1989:5). This bleak outlook put into question USAID's salary-support program -- funded under the cooperative strengthening component of Agribusiness Development -- which sought to hire temporary qualified technicians until cooperatives could, through the demonstration effect, take over. Although Kraljevic suggested that the success of all of the cooperatives was the result of outside technical assistance, he also maintained that continued prosperity was contingent on "... the indefinite participation of highly qualified and specialized personnel" (Kraljevic, 1989:6).

In few USAID-sponsored cooperatives is Kraljevic's analysis more poignant than at Rincón Grande. Peter Alfonzo, an

⁶¹ Study without title or date by Lal Daryani (circa 1988) found in the Acualá association's files.

American with substantial experience growing strawberries in Florida, was hired to manage the cooperative. Alfonzo, described as "no wizard at technical inputs", pooled many small-farm plots together to facilitate a rather expensive irrigation system (Fletterjohn, 14\12\89). Although this suited the work habits of the cooperative's members, who had a history of cooperativism, it also engendered unforeseen problems. First and foremost, like Quatro Pinos, the farmers were progressively alienated from the technology that surrounded them. In addition, there have been difficulties manipulating peak production to coincide with peak demand during the U.S. winter months. Technological problems plagued the project, such as soil deficient in zinc and iron and a susceptibility to the med fly, which resulted in numerous shipments being refused by the United States Food and Drug Administration (USFDA). The biggest drawback is not contested: by 1990 the project had cost USAID approximately U.S.\$75,000 per cooperative family (Fletterjohn, 14\12\89), no doubt drawing funds away from many other small farm projects. In addition, the intricate nature of the growing technology employed is well beyond the capacity of Rincón Grande's farmers to comprehend.

Like Kusterer et al. (1981), Kraljevic highlighted many of the diverse cultural ways of communal organizing, identifying them as impediments to running an export

business. The management and administration of an export enterprise is in many ways the antithesis of the way in which the indigenous communities of the highlands traditionally organize themselves. Traditional communal administration structures -- usually born out of communal action -- bring about many inefficiencies in production and marketing systems. These groups are characterized by a predisposition to serve the community's needs, not those of the business venture. Viable agricultural organizations, however, demand that a certain amount of the costs and benefits be reinvested into the business. Magdalena's cooperative, as will be discussed below, has reconciled many of these differences by creating social committees that receive a set percentage of the cooperative's profits. In this way, there is a greater development of the community through the traditional channels of communal redistribution.

Community leaders, to contrast, generally serve on an unpaid voluntary basis. They find it difficult to make the transition from procuring communal goods and services, for example, to the ranks of long-term managerial service in an organization that seeks benefits for the economic enterprise. Small groups, Magdalena included, continue to practise consensus management. This is said to be the spawning ground of charismatic leadership, which is denigrated by USAID as being "undemocratic".

Furthermore, influenced by the ideals of community self-development and independence, cooperative members have a tendency, which is counter productive according to Kraljevic (1989:7,9), to expect that farmers must manage their own organizations. Many cooperatives are distrustful of outsiders. The unpredictable nature of markets and unscrupulous business practices -- with which the highland inhabitants are well acquainted -- suggest that vulnerable small farmer groups have good reason for this lack of confidence.

There are numerous other less fortunate cooperatives throughout the highlands that lack either funding or direction but have nevertheless begun to produce export vegetables. Most cannot overcome many fundamental requirements of an export venture, such as producing vegetables of a standard acceptable to exporters. Many are so far behind in terms of the necessary experience, managerial capability, market familiarization and, most of all, financial backing, that it is questionable as to whether scarce resources should not be spent elsewhere.

The Acualá agricultural association in Patzún, Chimaltenango, which has had 12 years of experience contract farming with ALCOSA, was able to improve vegetable quality but board members estimated that they would have to invest

in a processing\cooling plant to make a worthwhile profit. Despite financial support from the Inter-American Foundation (IAF)⁶² and the Christian Children's Fund, the necessary funding was well beyond what could be raised. Acualá had to settle for a credit and technical assistance package that did not help address the immediate problem, "enrichment of the intermediaries and processing plants" to whom the association sold its discounted produce (Rafael Buc Bach, 25\01\90). Added to their difficulties was the misfortune suffered in December 1989, when the community's entire vegetable crop was completely destroyed by severe frosts. The association's 400 members, many of whom had their lands mortgaged, were, during the month of the author's participation, anxiously seeking to renegotiate their debts.

Bordering the Rincón Grande strawberry cooperative in Zaragosa, Chimaltenago, is the hamlet of Rincón Chiquita. At the end of 1989, this small group of independent farmers had had two years experience growing export vegetables on rented land. The contracts they had with Consolidada and ALCOSA were paltry: the agro-industries gave the farmers seeds and promised to buy all the export-standard vegetables produced. Lacking fertilizers to improve the infertile soil and the

⁶² Acualá was the IAF's most successful of approximately 15 supported cooperatives throughout Guatemala. Las Canoas and Palencia, agricultural associations that were closest to Acualá's stage of development, were still daunted by production problems (Dávila, 07\12\89).

money to invest in pesticides took its toll on the community. After two years of export vegetable production, the farmers were unable to improve on their 30 to 40 percent quality rejection rate. Moreover, the December 1989 broccoli crop was completely refused by Consolidada. In a gesture that suggests the need for extension services, the farmers indicated that they were going to use the refused broccoli for seeds, a clear sign that they did not know that hybrid plant varieties produce sub-standard seeds (Mush and Gabriel, 27\11\89).⁶³ Squandering human efforts and portions of scarce land on a hopelessly complicated export scheme clearly diverted these resources from other basic needs or more appropriate projects.

3.6 SMALL-FARM COMPARATIVE ADVANTAGE

There is mounting evidence to suggest that medium-sized producers are beginning to enter the vegetable crop production market. Many agricultural entrepreneurs, driven by the negative price incentives of traditional crops, have overcome initial technical difficulties (Elsasser, 22\12\89; Clark 19\12\89) and are diversifying into what is generally perceived as the most profitable land use opportunity for the future (This Week, 6\11\89). Visual evidence from rural

⁶³ Despite their lack of familiarization with new plant technologies, the informants did lament the fact that the hybrid seeds had not been tested by an agronomist to gauge their suitability for local soils.

areas in 1989-1990 revealed that large and medium farmers are cultivating vegetables. For example, large tracts of vegetables, in excess of 30 hectares, are visible in Paraná, Chimaltenango and in Santo Tomas Milpas Altas, Sacatépequez (adjacent to Magdalena Milpas Altas). The latter cropland is owned by the agro-industry INEXA which grows a portion of its own snow peas.

This conflicts with one of the major USAID assertions that guided export vegetable proliferation in Guatemala's highlands. Mission officials have always maintained that small farmers - through vigilance and increased labour inputs - have a distinctive niche in the production process⁶⁴. New developments indicate that at least a portion of medium size farmers and agro-industries have overcome, or are in the process of overcoming, some of the barriers that were encountered by these larger farmers in the mid-1970s, which motivated ALCOSA to contract farm with progressively smaller outgrowers. Many agro-industries prefer to buy from larger growers when possible. There is an increasing incidence of exporters who have stopped buying their vegetables from small farmers because of administrative

⁶⁴ When presented with the evidence of medium and large farmer competition in vegetable production -- crops deemed to be uniquely suited to small-farmers -- the majority of USAID officials generally re-iterated the fact that too much attention was necessary to produce standard quality vegetables. These could never be plantation crops, they assured.

difficulties and the perception that larger growers are better able to control their quality (Hoppin quoted in Gardner et al., 1990).

USAID's promotional efforts have shifted accordingly. An official of ROCAP's Non-Traditional Agricultural Export Support Project (PROEXAG) stated that by 1990 medium and large farmers were receiving almost exclusive assistance to the detriment of their geographically dispersed and disorganized small farmer counterparts (Clark, 10\12\89).

3.7 CONCLUSIONS

It is clear from the analysis that small farmers were not the focus of export vegetable activities until they "earned" their place in the production process through contract farming with ALCOSA. Acting on these fortuitous circumstances, USAID packaged vegetables as a small farmer activity in its Agribusiness Development project, dedicating approximately 25 percent of its budget to small-farm credit and cooperative strengthening schemes. The project fit into USAID's philosophy of growth and redistribution through the "private sector," while concurrently appeasing Guatemala's industrial bourgeoisie with opportunities in processing, the government with hard currency, and even the military who managed to fit the vision of "plantations of fruits and vegetables" throughout the highlands into their

counterinsurgency plans (Wohlers cited in Moe, 1989:68-69). What is more, large-scale growers are also making inroads as they search for alternatives to the declining traditional exports.

The evaluation of cooperatives and associations presented here is by no means complete. Each one merits a deeper more analytic treatment. The cursory evidence, however, is quite discouraging. Quatro Pinos, standing on its own, has demonstrated that it is possible to take full advantage of contract farming to establish a producing\ exporting business. In this case, the cooperative was bolstered by effective international support and a legacy of experience producing vegetables for local markets. The four other USAID\CLUSA-sponsored small farm groups and the one IAF-supported group had serious organizational, managerial, and\or financial problems that have not been overcome. They faced "de-personalized" technologies, management in isolation by urban professionals and market chain failures. Furthermore, business structures often conflict with traditional communal structures as each system shuns compromise.

If groups who benefit from external funding cannot overcome exporting obstacles, this diminishes the likelihood that the large body of cooperatives and associations that inhabit the

highlands, most without generous sponsors, can do otherwise. These groups, if Rincón Chiquita is any indicator, are confronted with a different set of barriers. They suffer from insufficient technical assistance and agro-industry's occasional abuse of its outgrowers.

USAID\CLUSA-sponsored cooperatives should not only be preoccupied with their market channels. They should also plan for the eventual termination of the Agribusiness Development project and any other extensions or related projects that it spawns. USAID consultants and other private analysts have pointed out that USAID objectives -- to teach cooperatives to manage and administer for themselves -- were very optimistic and would need at least ten years to become fruitful. These goals will probably never be reached. There are certain cooperatives -- Rincón Grande and Kato-ki, for instance -- where the financial and technical abyss created by USAID's withdrawal would no doubt end their aspirations of becoming export enterprises, and perhaps leave them with substantial debt.

USAID funding patterns, but not its official rhetoric, are responding to changes in the source of production. Much of their allocation of resources -- the 75 percent of Agribusiness Development funds devoted to agro-industry credit and facilitation for instance -- has subsidized and

nurtured medium-size farmers and businesses that could not compete at the time that ALCOSA first began its operations in the mid-1970s. With these bleak prospects for small farm enterprise, we turn to the case study. Given the monumental barriers, it is hard to imagine that any other cooperative could successfully move beyond contract farming. The accomplishments of Magdalena Miplas Altas' small 119 member cooperative, however, are the envy of the majority of cooperatives detailed above.

CHAPTER 4: CASE STUDY: COOPERATIVA AGRICOLA MAGDALENA

4.1 THE MUNICIPALITY

The Municipality of Magdalena Milpas Altas encompasses two hamlets (Buena Vista and San Miguel), one small settlement (Mirasol) and the municipal head (also called Magdalena Milpas Altas) (Figure 4.1). The municipality is located three kilometres from the main four-lane highway that connects the capital, Guatemala City (40 kms) to Antigua (15 kms), a regional tourism centre. This short feeder road is almost entirely paved except for a half kilometre between Santa Tomas and Magdalena.

The total population of the municipality of Magdalena Milpas Altas has been estimated in the last official population census of 1981 to be 2,685, or 485 households (Guatemala, 1985). Of this total population, 1,771 (66 percent) were considered literate, a relatively high rate in Guatemala; 1,299 (48 percent) were considered indigenous; and 784 (29 percent) were economically active. In 1979, Sanabria (1980a:26) calculated that 90 percent of the municipality's heads of households (men) were farmers; the remaining 10 percent were employed as bus drivers, house builders, carpenters, tailors, bakers, or hothouse flower growers. Only 0.7 percent of his entire sample were farm labourers, or literally "day workers" (*jornaleros*).

The Municipality of Magdalena Milpas Altas measures approximately eight kilometres square and is located in Guatemala's western highlands in the department of Sacatepéquez (Figure 1.2). The municipality is approximately 50 percent forested (Sanabria, 1980a:9), especially in the **Bosque Magdalena** region, which extends across the highest mountain peaks: **Cerro Monterrico** (2434 metres), **Cerro Panul** (2430 metres) and **Cerro las Minas** (2400 metres) (Figure 4.1). This forest resource, threatened by acid rain from Guatemala City and other human activity, is vigorously protected by **Malanecos** (residents of Magdalena). The forest regulates four natural water springs that together account for more than half of Magdalena's 351 cubic metres per day supply of fresh water. This volume of water, although adequate for domestic household purposes, is not nearly sufficient for agricultural irrigation, which would entail costly drilling to a depth of close to 200 metres to reach ground water (Sanabria, 1980a:5-6).

Elevations within the municipality vary between 2000 and 2500 metres above sea level. The average annual rainfall is 1238 millimetres (most agriculture is rain-fed). The average temperature is 15.9°C and the relative humidity varies between 75 and 90 percent (Sanabria, 1980a:28). Crops are often subjected to adverse climatic conditions, such as December frosts. More devastating in Magdalena, especially

in the higher elevations or húmido (humid) plots, are the high winds that prevail from the Guatemala valley (Guatemala City) and from the Chimaltenango valley in the months of November, December and February.

4.2 MANAGEMENT AND ADMINISTRATIVE STRUCTURE

The **Cooperativa Agrícola Magdalena (CoAg)** was established on September 13, 1981. It began its export activities, and occasionally continues this practice when profitable, by contract farming with ALCOSA. By 1985, it had diversified to three other local buyers (INEXA, Consolidada, and LICO & CIA) and experimented with its own exports of fresh produce. In 1988, the income earned from contract farming was equal to the value of direct exports⁶⁵. In the same year, the cooperative rented out its excess processing\cooling facilities from its newly installed processing plant⁶⁶. One cooperative and five businesses, including, ironically,

⁶⁵ These figures were Q433,663.50 and Q432,959.00, respectively. For Magdalena's annual crop production in kilograms, see (Table 4.1).

⁶⁶ CoAg's sorting and chilling plant is much cheaper than a sorting and freezing plant like that in Quatro Pinos (about one-sixth the cost), and a lot less complicated and prone to breakdown. Furthermore, freezing plants require a substantial amount of water, between 60 and 80 gallons per minute (Ramón Pedras, 13\01\90). In many of the spring-fed communities of the highlands, costs would thus be incurred for finding an adequate source of sub-surface water and then pumping it from tremendous depths. In Magdalena Milpas Altas the required amount of water is found at a depth of 1,500 ft. At a cost of 15,000 quetzales per 100 ft., or a total cost of 250,000 quetzales - more than half the cost of the plant -- this investment is substantial.

TABLE 4.1--MAGDALENA CROP PRODUCTION PER GROWING YEAR (Kilos)

Crop	1983-84	1984-85	1985-86	1986-87
Broccoli	185,000	80,645	388,174	554,545
Cauliflower	--	69,230	69,812	49,090
Brussel Sprout	--	30,476	5,706	--
Carrot	--	--	13,305	--
Snow Peas	90,090	156,759	125,296	275,000
Squash	--	--	--	11,363

Source: El Agricultor Malaneco, Nos. 1-9.

ALCOSA, found it profitable to use Magdalena's facilities (El Agricultor Maleneco, Nos. 1-9).

The foundation of Magdalena's most renowned enterprise has been based on competent leadership, effective analysis, and its clear goals. The organization is distinguished by the efficient use of capital and the enthusiastic search for and utilization of external markets. The cooperative has adapted to climatic and business cycle uncertainties by pursuing a very active and pragmatic business approach. Collective crop strategies are devised based on analyses of local soil capacity, crop prices offered, the quality standards of different companies,⁶⁷ and an awareness of competitor plantings. Market analysis is carried out on a regular basis. Cooperative crop portfolios and market outlets are then adjusted accordingly.

To recoup lost income caused by temporary drought and the torrential rains of 1988, for instance, the board of directors adopted creative strategies, such as renting its processing infrastructure to other cooperatives and

⁶⁷ During the 1990-1991 season, for example, the cooperative decided that it could profitably produce approximately one million pounds of broccoli for the processor\exporter INEXA. During peak harvest, this would require delivering three to five truckloads per day. To avoid costly delays, provisions in the contract called for a reserved off-loading dock and an exclusive set of vegetable boxes (Cooperativa Agrícola weekly meeting, 08\03\90).

businesses, or buying produce from other non-member growers.⁶⁸ Such a businesslike attitude, often in the face of potential disaster, has allowed the cooperative to continually meet its debt payments -- and cancel the major debit incurred by building the plant 2.5 years before the due date⁶⁹ -- while maintaining attractive incentives for cooperative members. The way in which CoAg operates is much closer to the ideal small-farm enterprise envisioned by USAID despite its oft-criticized management and administrative structures.

CoAg's leadership is by and large based on the charisma and efforts of a single individual. Edwin Sanabria, the manager of the Magdalena cooperative, represents what is lamentably in short supply in developing countries: a university graduate who has chosen to apply his knowledge in a rural community. His management style has been criticized for its centralization, yet admired for its accomplishments by the same critics (Sandbach, 26\02\90). Sanabria's style of management is very much "hands-on" in the sense that he plays a large role in production, technical assistance,

⁶⁸ The Acualá association, introduced in the previous chapter, when complaining of processor profiteering was partially referring to CoAg to which it sold a portion of its output.

⁶⁹ The Q403,000 debt - a USAID loan through BANDESA - was officially paid off during the Cooperativa Agrícola's annual assembly (31\03\90).

input procurement, export logistics and quality control. In addition, he monitors the administration, accounting, personnel changes, and various other tasks essential to the cooperative enterprise. As the membership and production volumes increase, Sanabria takes on more responsibility and longer working hours. Lack of expertise and education in Magdalena -- like the majority of highland communities -- is a contributing factor to investing so much responsibility in one person.

Yet the cooperative refuses to return to depending on external assistance. In 1986-1987, it accepted CLUSA sponsorship in the form of salary support for a manager and vice-manager as well as other services. According to several of CoAg's board members, a CLUSA-approved U.S. produce broker was incompetent. Furthermore, the recommended technical staff were considered to be preoccupied with their own careers. The experience left the cooperative membership longing for independence, and a staff chosen from its own community. Currently, the administration, supervisors and managerial staff are all from Magdalena. Cooperative members are adamant about their present tight-knit structure. They praise its advantages, which include less corruption, more collective trust, a common identity and a sense of belonging, faster communication and prompt airing of complaints and problems.

The cooperative's organizational structure, largely staffed by poorly educated peasants, is the type that Kraljevic (1989) suggests cannot succeed due to administrative and management voids. His concerns are implicit in the discussion of expansion, which is currently preoccupying the cooperative's members. The cooperative recognizes that without changes its administrative structure will be prone to problems in the foreseeable future. Although the 119 members are still able to meet under one roof, the desirability and inevitability of future growth is lessening the resistance to expansion that began in 1985 (El Agricultor Maleneco, 1985). Expansion is necessary to attain the cooperative's goal of incorporating the entire community into the venture, thus acting as a larger engine of community development. Growth is also necessary for the business venture. This requires more members, or perhaps more associate producers. The former option requires that neighbouring communities admitted into the cooperative elect representatives as direct personal representation becomes increasingly difficult with large numbers. As it stands, the cooperative is highly dependent on one overworked individual. It remains to be seen if and how it can integrate more community growers without overtaxing members' capacity to manage and administer.

4.3 THE SURVEY

The survey was administered to 26 randomly selected cooperative members (approximately one quarter of the 119 membership) from the cooperative's list, and a control sample of 15 non-members from a total population of roughly 500 non-member households (see Appendix B). The member sample was stratified based on the cooperative's measure of a member's commitment to cooperative values. The small sample sizes do not allow for definitive tests of the IFPRI observations in Quatro Pinos but provide for an exploration of the issues. IFPRI's methodology cannot be duplicated as they drew on the extensive survey work which had been conducted in the Quatro Pinos districts throughout the 1980s.

The data showed no meaningful difference between member and non-member ages and education levels. There was a wide range of ages from 23 years to 66 years of age. No respondents of either member or non-member groups had been educated beyond the fifth grade. More than half of the non-members interviewed expressed a desire to join the cooperative (to lower input prices), whereas a third claimed they were content with their current situation.

Both cooperative members and non-members had equal relative proportions of hot and humid lands. On average, 42% of

small-farmer landholdings sampled in Magdalena were self-described as hot and 58% were considered humid. Lands at higher elevations, despite greater risks of frost and high winds, were disproportionately coveted because seeds germinate earlier due to mists and dews.

4.4 LAND SIZES

It is general practice to classify farmers according to their farm size. Those that rely predominantly on their farms for family income, as is the case in this study, are assigned to a wealth category that corresponds to the size of their plots. In Magdalena Milpas Altas farmers cultivate small plots. Their farms have become smaller than recorded in the 1979 agricultural census and are smaller than the average farm size in neighbouring communities from which Quatro Pinos draws its members.

According to the last national agricultural census conducted in 1979, the municipality of Magdalena had 455 individual farms, which in total occupied 262 hectares (Table 4.2). The most common farm size fell between 32.3 square metres to 0.7 hectares, referred to as "micro-farms". No fewer than 261 farms (57 percent) were classified as micro-farms, the average size being 0.3 hectares. There were also 193 "sub-

TABLE 4.2--FARM SIZES IN MAGDALENA MILPAS ATLAS BY NUMBER, TOTAL AND AVERAGE EXTENT AREA, AND EXTENT AREA LYING IN FALLOW.

Farm Size	Total Number of Farms	Total Extent Area	Average Farm Size	Extent Area in Fallow
		(hectares)	(hectares)	(hectares)
Micro ^a	261	80.5	0.3	0.18
Sub-family ^b	193	179.3	0.9	1.18
Family ^c	1	2.1	2.1	-
Total	455	261.9	-	1.48

Source: Dirección General de Estadística, III CENSO NACIONAL AGROPECUARIO - 1979

^a (32.2 m² to 0.7 hectares)

^b (0.7 to 6.9 hectares)

^c (6.9 to 44 hectares; the single 2.1 hectare farm was erroneously classified as a Family farm. Its dimensions were clearly those of a Sub-family farm.

family" farms (42 percent) measuring from 0.7 to 6.9 hectares, the average size being 0.9 hectares.⁷⁰

The census-takers recorded that only 1.48 hectares, or 0.56 percent of the municipality's land, was lying in fallow at the time of data collection. The amount of land in fallow was the smallest percentage in all of Sacatépequez and much of neighbouring Chimaltenango. Agricultural land in Magdalena was thus divided into small, intensively farmed plots.

There are limits to the utility of the census farm size classifications for the purposes of this investigation. This is because the majority (89 percent) of both cooperative members and non-members fall into the category of micro-farmers (below 0.7 hectares). If the census is correct, the process of sub-division in Magdalena is progressing rather rapidly.

The 1990 survey data showed that CoAg members on average owned 0.67 hectares and cultivated 0.44 hectares (Table 4.3). Non-members owned on average 0.43 hectares and cultivated 0.33 hectares. The portions of land not

⁷⁰ The census also mistakenly lists a 2.1 hectare sub-family plot as a "family-size" farm, which falls between 6.9 and 44 hectares. As no evidence exists today of any family-size farm, this oversight is undoubtedly the product of survey-taker error, not uncommon in Guatemala.

TABLE 4.3--MAGDALENA LAND CHARACTERISTICS, 1990

	Owned	Forested	Cultivated
	(hectares)		
Member	0.67 ^a	0.23	0.44
Non-Member	0.43 ^b	0.10	0.33

^a The values for members' land holdings were not normally distributed. Two had holdings above 2.2 hectares (2.2 and 2.3). Their hectares cultivated, however, were relatively closer to other members. While being on the high end of values, they cultivated 0.6 and 0.9 hectares respectively.

^b Non-memeber holdings were more normally distributed. All of the values fell between 0.3 and 0.52 hectares.

cultivated were generally forested, with members having on average over double the amount of forested land, 0.23 hectares relative to the non-members' 0.1 hectare average. In comparison with Quatro Pinos farmers, who have been described as very small farmers, Magdalena farmers cultivate plots that are half the average size of their Quatro Pino equivalents. Cooperative members in Magdalena cultivate 0.44 hectares (cf. Quatro Pinos 0.94 ha.), whereas non-members cultivate 0.33 hectares (cf. Quatro Pinos 0.66 ha.) (Braun et al., 1989:36). Accordingly, Magdalena farmers should be designated very, very small farmers.

4.4.1 LAND CONCENTRATION

Land concentration has been a concern to many who have observed the expansion of high-value vegetables in Guatemala's highlands. Land market activity has accompanied vegetable production in other regions of the highlands. More land being bought alarms many critics who assume that more families are thus losing land. Some suggest that it is the traditional maize and bean farmers who will lose their holdings due to increased competition (and high prices offered), relegating them to the few other alternatives for survival.

There is evidence of above average land purchasing in Magdalena as well. Cooperative members are buying land at an annual average rate of 6.5 percent of holdings.⁷¹ There was some indication that larger farmers were buying more land than were smaller member farmers. Non-members, by comparison, did not report any purchases of land for the agricultural year 1989-1990. This is strong evidence to support the inference that export vegetables are encouraging some concentration of land resources. The purchase rate registered in Quatro Pinos for 1985 was estimated at 12 percent ⁷²(Braun et al., 1989:48). The prosperity of this cooperative has probably generated one of the higher rates in the highlands.

⁷¹ This calculation is based on the amount of land owned. When based on the amount of land farmed, the purchasing rate was 10.2 percent.

⁷² There is some confusion surrounding this estimate. In 1981, Kusterer et al. (1981:59) estimated that the average farm size in Santiago, Sacatépequez, where Quatro Pinos is located, was three *cuerdas*, or 0.13 hectares. In 1985, an INCAP\IFPRI survey indicated that the average size of Santiago cooperative member holdings were 0.85 hectares (cited in Braun et al., 1989:36). There are two possible causes for this increase. First, it could have resulted from larger landholders becoming members, although Braun et al. (1989:34) state that larger farmers joined Quatro Pinos at the beginning and were followed by smaller farmers. The second possibility is that vegetable farmers are buying land with their profits. IFPRI estimated that members' annual land purchasing frequency between 1984 and 1985 were on average 12.2 percent. Although this rate may have been correct for that particular period, the purchasing rate would have had to have been closer to 50 percent if we are to believe the USAID consultant's (Ken Kusterer) initial estimate.

4.4.2 RENTING AND BORROWING

Indications of changes in the land market can also be gathered from borrowing and renting practices. The survey showed that on average non-members rarely rented but often borrowed parcels of land, or about 0.07 hectares on average. Members showed the opposite tendency, renting on average 0.06 hectares and borrowing minuscule amounts. Six of the 15 non-member respondents were landless. These individuals chose to borrow, and less frequently rent cropland rather than work as farm labourers. Three of them claimed to work occasionally as a labourers. Three, however, had occasional part-time work to support them. Avoiding agricultural labour is no doubt related to the low salaries offered, as will be discussed below.

It is not surprising to see members renting given the lucrative nature of export vegetable cultivation. What is more, they have more financial resources to offset the much lamented rise in the price of land, doubling in less than two years to a general level of Q 50.00 per *cuerda* (0.044 hectares).⁷³ Although the survey data did not reflect the tendency, informal conversation indicated that increasing

⁷³ This figure was cited in an internal CLUSA document, Informe al Proyecto CLUSA/AID: Magdalena, Milpas Altas, dated June 24, 1987. Numerous informal respondents expressed fear in 1990 that the rental fee for a *cuerda* of land was rising again and that it would eventually reach Q75.00 as it had in Zaragoza, Chimaltenango.

land rents are beginning to price non-members out of the rental market. Most have been fortunate enough to have access to borrowed land from friends and neighbours. When they did rent land, non-members each paid Q25.00 per *cuerda*, or about half the rent generally paid by members. This disparity might be explained by the fact that vegetable farmers demand better land for their crops. Pressure is nevertheless mounting, as non-members themselves acknowledged, for them to become part of the cooperative. Many claimed that the Q200 (U.S.\$66) membership fee, equivalent to 50 percent of the salary of half the non-member respondents, was beyond their capacity to pay.

4.5 INCOMES

Direct approaches to assessing income are an imposition, if not invasions of what many take to be private matters. They are often inaccurate due to respondent forgetfulness or even calculated deceit. Indirect approaches, such as the present method based on food and non-food expenditures, also suffer from the above distortions, but arguably to a lesser extent. The incomes of Magdalena farmers were calculated by using expenditures as an income proxy. Purchases, captured from both male and female householders (see Appendices C.1:No.22; C.2:Nos.11 and 12), consisted of home improvements, household furniture, electric appliances, machinery, new parcels of land (or savings towards a future parcel),

education for children, and transportation. Women were asked to give the monetary expenditures for medical expenses, personal and childrens' transportation costs, soaps and accessories, entertainment (per week and year), family clothing (especially during holidays), as well as a one week recall period of food expenses from which a yearly estimate was derived. An effort was made to arrive at a net income by isolating capital inputs such as land rental fees in order to arrive at a rough net income. Land purchases, both a capital input and an investment, was classified as a net income expense. Savings, generally the most difficult amount for survey takers to assess, were sometimes volunteered and at other times said to be non-existent.

Using this formula, approximate net incomes were calculated for each member and non-member respondent. As the data was not normally distributed, it is plotted in quintiles in Figure 4.2. Close to half of the non-members interviewed claimed that their incomes were less than U.S. \$100.00. The remainder were distributed throughout the other quintiles. One non-member had an annual household income of U.S. \$1479.00, well beyond the non-member median of U.S. \$202.00. Upon closer scrutiny it was found that while possessing relatively average sized landholdings this farmer had an elder son living in the household who worked for the

**FIGURE 4.2--MEMBER VERSUS NON-MEMBER INCOMES
(quintiles)**

Note : Between 1989 and 1990 the quetzal's U.S. dollar value declined by 49 percent. The exchange rate used to calculate U.S. dollars was an approximate yearly average of U.S. \$1:Q3 for the period (see CAR, 25/08/89 and 16/03/90).

government. This may have contributed to the irregularly high income observed.

Roughly three quarters of member farmers had annual incomes above U.S. \$230.00, and half had annual incomes above U.S. \$450.00. The median of the member distribution was U.S. \$615.00. Two of the member values (U.S. \$4393.00 and U.S. \$5673.00) were clearly statistical outliers. To some extent both of these outliers bring forth the weaknesses of using expenditure data as an income proxy. An accurate measure of annual income should endeavour to isolate expenditures from accumulated savings from expenditures made from current (survey) year. Both cases involved expenditures of retained income from the year in question and a portion of savings from previous years. One of these extreme cases bought 0.4 hectares of land for U.S. \$2333.00 during the survey year. When questioned, the farmer could not say what part was savings and what portion had been earned that year. The extreme value of the second income is explained by two factors. First, this farmer was also the CoAg's "coyote", or intermediary, who brought in produce from other non-affiliated growers to subsidize the cooperatives own production. Second, he had just spent his savings (again without specific knowledge about the percentage saved from current year's income) for the partial payment of a pick-up truck. Among other things, this indicates that there is

ample opportunity for ambitious intermediaries to enrich themselves.

Even if these extreme cases are ignored, the data supports the broad conclusion that small farmers can increase their incomes through exporting vegetables. Membership in the cooperative has apparently enabled some small farmers to increase their farm incomes considerably. A large proportion of member expenditures (77%) was invested in furnishings and home improvements, such as replacing maize stalk walls and doors and laying cement floors. Non-members, on the other had fewer such expenditures, and generally lived in more traditional housing.

4.6 LABOUR

4.6.1 CROPPING TECHNIQUES

The export vegetables grown in the highlands of Guatemala demand more labour and vigilance than traditional maize and bean crops. This is partially due to strict quality requirements demanded by the North American market. It is also inherent, however, in the production process, which unlike maize, often planted "a calsa,"⁷⁴ requires a number of well-timed tasks.

⁷⁴ "A calsa", a local colloquialism, refers to the relatively worry-free steps required for growing maize: digging a hole, planting a seed and stepping on the hole to close it.

The most labour-intensive⁷⁵ vegetable grown in Guatemala by far is the snow pea. First, as is done before all plantings, the land must be "ploughed and picked," a process whereby the soil is broken up and aired out and unwanted vegetation is uprooted in the process. Given the virtual absence of mechanization, this task is undertaken using a straight wooden pick and an *azadón* (traditional wide-bladed hoe). Whenever possible, these arduous tasks are allocated to hired labour. After soil preparation, seeds are planted with natural and chemical fertilizers. Once the seedlings sprout, mounds are built around the plants so that they can withstand high winds. Then follows the digging of holes and the erection of support poles at the ends (and at necessary intervals) of each row of pea plants. When the pea plants reach above 20 centimetres, the first double line of nylon twine is strung between the support poles. This is repeated every 5 days at a distance of 20 centimetres above the last line to provide support to the plant as it grows. Each alternate week, when the farmer is not setting the twine supports, he\she must slip the growing vines in between each doubled support line. Once the plants flower, they are fertilized a second time. After 90 days, the final

⁷⁵ Snow peas are also the most capital-intensive. The total cost of agricultural inputs for snow peas by Quatro Pinos members has been estimated at Q1,567.16 per hectare relative to Q113.98 for *milpa*, or more than 13 times as high (1989:43). Gardner (1991:11), quoting a USAID source, suggests that production costs for snow peas are more than six times what it costs to produce basic grains.

fertilization takes place. Meanwhile, the farmer has been fumigating the plants twice weekly or three times during the rainy season. Once harvesting begins (generally between 2 and 3 months, but longer during times of drought), the farmer must harvest every other day or three times weekly. This must be done with the utmost vigilance, for over-sized, fibrous, or carbon-marked vegetables are not acceptable in snow pea markets. Harvests generally last anywhere from one to three months.

Growing broccoli, for the sake of comparison, is not quite as time-consuming as snow pea cultivation. Generally, a farmer simultaneously grows broccoli seedlings in a seedbed close to home while preparing the land. Once the land is ploughed and picked, and the seedlings have sprouted (20 to 30 days later), they are transplanted into the prepared plot and fertilizer is applied. During the course of their growth, broccoli plants are generally sprayed for pests weekly. Once the harvest begins, all plants are gathered within two weeks.

Vegetable farmers cultivate more intensively and are on a tighter time schedule. The horticulturist's labour-intensive farming system requires that plantings be well thought out beforehand so that agricultural tasks can be spread out, ideally giving the farmer a full day of work year-round.

This is accomplished by planting in phases so that labour is fully employed for a prolonged period. For example, some farmers with 4 *cuerdas* of land reserved for broccoli will plant a single *cuerda* at 15 day intervals to create both a steady planting and harvesting period. Labour is thus more fully employed and more efficiently utilized at all times during the crop cycle. Some more meticulous farmers mark down planting dates, yields, weather patterns and other data pertaining to the previous year's crops. Calculations are then made of gains and losses and attempts are made to minimize losses in the future. These calculations then help the farmer determine the current year's crops, the acreage, and the timing of planting.

Inter-cropping is another common feature of Magdalena's intensively farmed plots. Members inter-crop about one third of their farm land. The most common inter-cropping patterns are those done in conjunction with snow peas. The snow pea is a legume (variety of *p.sativum*) that enriches the nitrogen content of the soil. This benefits sister crops or those which follow in a rotation. Member farmers devote 13 percent of their land to maize and snow peas. This made it difficult for the author to separate subsistence lands from plots devoted to export crops. Added to these complexities was the practice of planting in very tight rotations where one crop is planted between another that has not been

completely harvested. Because of the small-scale intercropping, farmers often had to count such areas as one quarter and one half *cuerdas* in order to respond to questions regarding the total areal extent of a particular crop.

4.6.2 FAMILY LABOUR

The survey was designed to examine the assertion made by many export vegetable advocates that horticulturists create more employment than their traditional maize and bean counterparts. In the following section, a comparison is made between the amount of hired labour used on member and non-member farms. In the former group labour hiring is examined on a monthly basis in order to bring forth seasonal patterns.

A notable exclusion is the labour inputs of the male cooperative members themselves. Farmer labour inputs were difficult to capture with a questionnaire survey. In test runs, most farmers claimed that they worked between 8 and 9 hours per day and six to six and a half days per week. An attempt was made to capture male farmer labour allocation with a two-week schedule distributed two weeks before the survey was run. The response rate was disheartening (25 percent). Even had farmers responded more enthusiastically to these schedules, the data would have been questionable as

a two week recall period cannot account for seasonal variations. These schedules were not used for interpretive purposes but merely acted as a cross-check of cropping patterns (see Appendix C.5)

For the purposes of this research labour efficiency is based on the number of additional work hours provided by women, children and hired labourers. There is no quick and efficient way of thoroughly assessing the quality of these additional labour inputs. The preceding section has given us an idea of the constant labour inputs required for export vegetable cultivation. Given that the majority of farmers complained about the costs of labour, it was assumed that farmers aspire to get the most work out of their hired labour and family members.

It is common in Magdalena for farmers, both members and non-members, to seldom visit their milpa plots between planting and harvesting. Non-member farmers are well occupied during times of planting and harvesting. Although it was not evaluated to any degree of analytical precision, these farmers sometimes have an inactive farming period in the interim, occupy themselves with smaller vegetable plots and some even experiment with export crops for sale to intermediaries. When hiring labour, this group of farmers tends to contract for specific tasks rather than for

extended periods of time, as is commonly practised by horticulturists. Milpéros tend to hire labour for turning and breaking the earth prior to planting, and for clearing the maize stalks out of the field after the harvest. The employment created for external labour by these farmers, however, is minimal. The average milpéro from Magdalena created 5.3 full days of work⁷⁶ for labourers outside the household during the course of the 1989-1990 agricultural season.

Non-member farmers claimed that the harvest periods did not produce labour shortages because it coincided with the school break (from October to February). Having their children free to assist in the fields for full days mitigates the need for hired labour. Nevertheless, milpéro children work less than their counterparts in vegetable growing families (if children worked during the school year they generally work half days and attend school for the remainder). The former group of farmers receive 96.8 full days of work from their sons, whereas vegetable-growing families receive 202.7 full days, more than double the days worked by milpéro sons (Table 4.4).

⁷⁶ In accordance with field observation, a full day of work is eight hours of continuous agriculture-related labour, excluding the break for lunch. This is not an analytically precise measurement, but it is nevertheless suitable to assess relative labour inputs.

Although totals were low, members also received more labour from their spouses and daughters. Member wives and daughters contributed an average of 47.2 and 18.5 full days of agriculture-related work (Table 4.4). Farmers' spouses took part in all the identified agricultural tasks (see Appendix C.2:No.7), but with a greater frequency in harvesting, carrying produce to the processing plant and carrying water to the farm plot. Daughters' work was generally confined to harvesting and planting, although one family benefitted from three daughters who did all agricultural tasks. Of these young women, two worked full time year round and the other (a younger 12 year old) worked half days for the entire year. This family was the only family of the 26 respondents that employed daughters on a regular daily basis. If the three daughters are omitted, the labour contribution from daughters of member farmers would fall to 4.0 days per year, below the overall average of 7.1 full days of labour found on non-member farms (Table 4.4). The labour contributions of daughters to horticulture-based farm systems in Magdalena seem insignificant to there operations.

4.6.3 HIRED LABOUR

Export-vegetable growers, by and large, were more dependent on the labour market than were non-members. They tend to shun contract work (0.12 days/year/farmer) in favour of

**TABLE 4.4--ANNUAL MEMBER AND NON-MEMBER AMOUNT OF LABOUR
INPUTS BY SOURCE**

Status	Hired	Son	Wife	Daughter
			(full days)	
Member	186.6	202.7	47.2	18.5 ^a
Non-Member	5.3	96.8	36.3	7.1

^a See text for an explanation of this figure.

Note: Labour contributions of sons and daughters 12 years of age and younger are multiplied by 0.7 in order to account for the observed lesser contribution to labour tasks.

**TABLE 4.5--AVERAGE DAYS OF EMPLOYMENT^a CREATED BY COOPERATIVE
MEMBERS PER MONTH, 1990**

Month	Full Days of Employment	Month	Full Days of Employment
January	20.25	July	17.83
February	17.58	August	15.67
March	15.83	September	16.0
April	9.08	October	17.08
May	16.5	November	18.33
June	17.5	December	20.5

^a Based on field observation, a full day of employment is considered to be eight hours of continuous agriculture-related labour, excluding the break for lunch.

full-time employment (5 to 6 days a week), especially during the peak harvest months of November, December and January. In the case study, 18.33, 20.5 and 20.3 full days of work were created for these months respectively (Table 4.5). April, averaging 9.1 full days of work, is the month during which the least amount of labour is hired. Production in phases, together with a general increase in labour vigilance seems to have diminished some of the seasonal tendencies characteristic of plantation work, which, as has been referred to in the chapters above, employs the bulk of its workers for four months of each year. Job creation per month averages out to 16.8 full days. During the course of the 1989-1990 season, the average member created 186.6 full days of employment. If 304 days are considered to be a full year's employment (365 minus 52 Sundays), then the average cooperative member created 0.6 jobs in a country much in need of job creation. Ideally, if every small farmer could produce jobs in the highlands a good proportion of the unemployed and underemployed could, as USAID claims, be "mopped up".

The quality, remuneration, and desirability of these newly created jobs should also be addressed, however. As much as many academics focusing on the rural areas of the world like

to romanticize the noble nature of working the soil,⁷⁷ it should nonetheless be recognized that the life of an agricultural hand is not very illustrious. Hired hands are generally expected, as indicated above, to do the more energy-consuming tasks such as turning the earth by hand and harvesting and carrying produce to the processing plant (much like spouses). What is more, like plantation labour, these agricultural hands are not working their own land, but in this case enriching a potential nascent class of rural entrepreneurs (if USAID's most optimistic scenario materializes). Meanwhile, hired labour salaries are kept to a bare minimum. Cultivators in Magdalena pay their hired labourers anywhere from between 5 to 7 quetzals⁷⁸ per day, sometimes with, sometimes without three meals daily. Even though this wage rate is standard in the rural zones of the area, it is still less than half of what Guatemala's largest farm workers' union, **El Comité de Unidad Campesina (CUC)**, has calculated to be necessary for the survival of the average farm family (Figure 4.3). CUC's research, conducted throughout the highlands in the months of December 1989 and

⁷⁷ For a good review of the literary roots of Western rural populism which still influences many academics and writers, see M.Lipton (1976, 130-141).

⁷⁸ The quetzal equalled approximately U.S. \$0.33 between 1989 and 1990.

**FIGURE 4.3--ESTIMATE OF THE DAILY SALARY REQUIRED FOR
THE SURVIVAL OF A PEASANT FAMILY OF SEVEN**

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CAMPO PAGADO

**COMITE DE UNIDAD CAMPESINA
GUATEMALA**

Cabeza clara, corazón solidario, puño combativo

POR UNA TORTILLA MAS PARA NUESTROS HIJOS EN LAS FINCAS **GASTO DIARIO DE UNA FAMILIA DE 7 MIEMBROS (PAPA Y MAMA MAS CINCO HIJOS) COMIENDO Y VISTIENDO LO MINIMO:**

GASTO EN COMIDA SEMANAL:

- 1 quintal de maíz	Q. 40.00
- 4 libras de frijol	4.80
- 3 libras de arroz	2.40
- 14 huevos	3.50
- 2 libras de carne con hueso	5.00
- 1 libra y media de fideos	1.50
- 4 pedazos de queso a la familia	1.00
- 7 libras de azúcar	3.50
- 1 litro de aceite de comida	2.80
- 3 litros de leche para niños	3.60
- 1 libra de café	3.00
- 1 libra de sal	0.15
- 14 panes chiquitos	2.10
- Verduras, zanahoria, papa, cilantro, tomate, cebolla	6.50
- Gonzas de chile	2.40
- Frutas: guineos, naranjas, etc.	1.50
Otros gastos semanal:	
- 4 jarrones bolas para lavar	Q 0.85 c/u..... 3.40
- 1 libra de cal	0.25
- 1 botella de gas	0.80
- 2 cargas de leña	Q 3.00 c/u..... 6.00
- 1 capita de fósforo	0.12
- Medicina solo para dolor de cabeza y estómago.....	3.00

NECESIDAD DE GASTO EN COMIDA SEMANAL Q 97.32

NECESIDAD DE GASTO EN COMIDA DIARIA Q 13.90

NECESIDAD Y OTROS GASTOS AL AÑO:

1. Ropa mínima de Padres de familia al año:	
- 1 pantalón	Q 25.00
- 1 camisa	15.00
- 1 par zapatos	35.00
- 1 par calces	10.00
- 1 calzoncillo	3.00
- 1 sombrero	6.00
- 1 playera sencilla	4.50
- 1 suéter o chumpa	25.00
- 1 corte simple de mujer	50.00
- 1 guipil simple	60.00
- 1 faja	15.00
- 1 capraj o sut	30.00
- 1 par zapato de mujer	12.00
Total.....	Q 290.50
2. Ropa para cinco niños o hijos al año:	
- 5 pantalones a Q 12.00 c/u	Q60.00
- 5 camisas a Q 10.50 c/u	52.50
- 5 botas hule a Q 10.00 c/u	50.00
- 5 calzoncillos Q 2.00 c/u	10.00
- 5 playeras a Q 4.00 c/u	20.00
- 5 sueteres a Q 10.00 c/u	50.00
- 2 chamarras a Q 18.00 c/u	36.00
Total.....	Q 278.50
3. Utensilios de Cocina al año:	
- 2 canastas	5.00
- 1 tinaja	10.00
- 2 ollas	3.00
- 1 comal	6.00
Total.....	Q 24.00
4. Educación al año:	
- Utiles escolares para 5 niños	
- a Q 30.00 por c/u al año	150.00
Total.....	Q 150.00

5. Instrumentos de Trabajo al año:

- 1 machete	8.50
- 1 azadón	25.00
- 2 llmas, 7.00 c/u	14.00
Total.....	Q 47.50

Total de gastos en ropa, utensilios, Educación, Instrumentos, al año Q 790.50
DIARIO SE NECESITA Q 2.16

RESUMEN DE GASTOS DIARIOS MINIMOS

Para comidas y otros gastos Q 13.90
Ropa, cocina, educación e instrumentos de trabajo Q 2.16
Total..... **Q 16.06**

A DIARIO SE NECESITA GANAR: DIEZ Y SEIS QUETZALES CON SEIS CENTAVOS.

OBSERVACIONES:

1. Sin incluir abono a Q40.00 el qq. e insecticidas para la milpa.
 2. Sin incluir alguna enfermedad grave a alguno de la familia.
 3. Sin incluir ningún transporte.
 4. Sin incluir días perdidos y multas en la patrulla civil.
 5. Sin incluir las fiestas y cuotas que nos pide el ejército.
 6. Sin incluir ninguna clase de diversión.
 7. El trabajo sería todos los días del año, sin ningún descanso.
- POR ESO, UN TRABAJADOR NECESITA GANAR COMO MINIMO Q 16.06 (DIEZ Y SEIS QUETZALES CON SEIS CENTAVOS) DIARIOS.**

- Por quintal de café cortado.
- Por quintal de algodón cortado.
- Por tonelada de caña cortada.
- En la picada de hule, bananeras y otros.
- Por tarea o diaria.

ADEMÁS, QUE NOS DEN:

- Ración de comida diaria.
- Instrumentos de trabajo.
- Séptimo día.
- Transporte a los cuadrilleros.
- Respeto a nuestros derechos.
- Todas las prestaciones laborales.

NOTA:

Investigación realizada y datos proporcionados por los campesinos de Totonicapán, Retalhuleu, Quetzaltenango, Quiché, Sololá, Escuintla, Suchitepéquez, Chimaltenango, Huehuetenango y otros lugares, durante los meses de Diciembre del 89 y Enero de 1990.

**TODOS A EXIGIR SALARIOS Y TRATOS JUSTOS EN LAS FINCAS
MIENTRAS HAYA HAMBRE... LA LUCHA SIGUE!**

**CABEZA CLARA,
CORAZON SOLIDARIO Y
PUÑO COMBATIVO DE LOS TRABAJADORES DEL CAMPO.**

Guatemala, 26 de Enero de 1990.

COMITE DE UNIDAD CAMPESINA —CUC—
Miembro de la Unidad de Acción Sindical y Popular —UASP—
del Consejo Internacional de los Tratados Indios —CITI—

January 1990, concluded that each family needed a daily minimum wage of Q16.06⁷⁹ (El Gráfico, 01/30/90).

Low wage rates and poor working conditions have undoubtedly negatively impacted upon the availability of agricultural labour in Magdalena. Farmers in the municipality have experienced decades of seasonal labour shortages, particularly acute at times of planting and harvesting. In 1979, Sanabria (1980a:27) observed that unemployment in Magdalena had been almost nonexistent for some time due to labour shortages, which he attributed to the migration of youth in search of better jobs and opportunities. For the majority of farmers cultivating farms above 0.5 hectares, labour deficits obliged them, according to Sanabria, to leave portions of their plots fallow⁸⁰. These labour shortages are also endemic in Quatro Pinos and Rincón Grande, two cooperatives in the neighbouring department of Chimaltenango (Kraljevic, 1989:vi).

In Magdalena, the need for labour is becoming urgent. The introduction of labour-intensive horticulture crops, as well

⁷⁹ This monetary amount was equivalent to approximately U.S. \$5.35. The calculation excluded both transportation and medical expenses as a result of serious illnesses.

⁸⁰ The agricultural census of 1979, however, recorded only 1.48 hectares in fallow in the entire Municipality (Table 4.2). Perhaps larger farmers substituted maize for labour-intensive cash crops when labour was scarce.

as a variety of processing plants in the area, has progressively worsened this labour shortage. While cooperatives and their members are becoming better producers, new businesses are rapidly emerging, competing for the same land, product and, of fundamental concern, the same labour. Both vegetable processing and exporting plants and small manufacturing industries⁸¹ have absorbed a large number of field hands. Industrial work, with roughly equivalent remuneration, offers the preferred indoor working environments with protection from the intense sun.

Magdalena cooperative members are responding by modifying their production process.⁸² Having often expressed an inability to increase wage rates to attract a work force,⁸³ cooperative members are left with few alternatives but to mechanize some of the arduous agricultural tasks. Once this path is chosen, the ideal solution, according to the

⁸¹ Those industries recently established in the area include **Las Caobas S.A.**, a wood products exporter employing approximately 100 persons; **INEXA S.A.**, **LICO S.A.** and **Charlis S.A.**, which are all vegetable processor/exporters employing 450, 30 and 200 persons, respectively; and a paint manufacturer (name not known), which employs approximately 250 workers.

⁸² The information in this section is a summary of the most salient points from the **Cooperativa Agrícola's** annual assembly (31/03/90).

⁸³ A full-time labourer for one year would cost a farmer approximately U.S. \$730.0 (313 days x Q 7.0 = Q 2191.0 or U.S. \$730.0). This is well above the cooperative members' median income of U.S. \$607.00 for 1989-1990.

members, is to find "democratic" types of machinery (or beasts) that can benefit all members equally. A tractor, for instance, can do much of the ploughing, planting and fumigation, and make holes for snow pea support posts. Unfortunately, large machinery can only access the low lying lands, or *tierra caliente*, and not the *tierra húmida* lands above the village due to the steep and narrow mountain passes that must be traversed. Beasts of burden are also being considered, although many associates believe that this would bring about new problems of trying to find forage for the animals to eat. According to the farmers, their small intensively farmed plots are not large enough to produce non-saleable or non-subsistence surplus. In the short term, the cooperative members agreed to replace hand-pumped sprayers with motorized fumigation packs to accelerate the task of fumigation.

It would seem that the market mechanism has failed in this instance. The highly mobile pool of labour in Guatemala is not responding to the low wages tendered. Nor do small farm employers have the capacity to raise the wages paid to hired hands. This may pose a significant limitation on USAID expectations of the widely professed employment benefits associated with vegetable production.

4.7 YIELDS

This section focuses on the question of basic grain yields or the specific notion that although vegetable farmers turn a large portion of their subsistence land over to vegetables for export they are nevertheless able to increase staple production to compensate for the decreased size. It begins by discussing Magdalena's long tradition of producing market vegetables.

Proximity to the largest markets in the republic -- Guatemala City and, to a lesser degree, Antigua and Amatitlán -- has historically provided a large impetus to vegetable production in the agricultural community of Magdalena. The earliest accounts of producing vegetables for the Guatemala City market were written in 1690 by Father Don Fray Agustin Cano in Francisco de Fuentes y Guzman's work "El Pueblo de las Milpas Altas" (Sanabria, 1980a:2). In 1720, the archbishop of Guatemala, Doctor Don Pedro Cortes y Larraz, recounted that the main vegetables cultivated in Magdalena were carrots, beets, and, to a lesser extent, various seasonal fruits (Instituto Geográfico Nacional, 1977:561).

In his 1979 questionnaire survey based on a 64 percent sample of Magdalena households, Sanabria revealed that 259 years after Don Cortes y Larraz's comments, 44.5 percent of

farmers continued to grow carrots and beets. Of these farmers, 90 percent sold these vegetables on the market, whereas the remaining 10 percent grew the vegetables for consumption alone⁴ (1980c:5-6). Yields were found to be average (61.1 kilograms\hectare for carrots; 143.9 kilograms\hectare for beets), mostly because of what the researcher recognized as potentially hazardous inefficiencies in local agricultural practices (Sanabria, 1980b:1). Like many other highland cultivators, Magdalena farmers were found to have an incomplete knowledge and over-dependence on agro-chemicals. Farmers also had poor commercialization channels and a dependence on solely these two market crops. Despite the glut in the local market of these major income-earning vegetables, few recognized that much potential existed for growing other, more lucrative crops. Through simple improvements in agricultural techniques, the field researcher suggested that yields could easily be doubled.

By 1990, the crop portfolio of these farmers, many of whom became cooperative members, had changed drastically. Local

⁴ Although little is known about their methodology, a 1978 Swiss Aid survey, *Investigación para la reconstrucción de Magdalena Milpas Altas*, indicated that only 14 percent of Magdalena residents grew vegetables for sale. Eleven months later, the agricultural census administered in May 1979, covering the previous 12 months, revealed that 32 of the municipality's 455 farms produced vegetables, for a total of 10.8 hectares, or 4 percent of all the cultivatable land in Magdalena.

market vegetables declined to below ten percent of their land whereas export vegetables occupied close to two-thirds of croplands (Table 4.6). The remaining portion, over a quarter of cultivated land, was dedicated to subsistence crops. There are many reasons why farmers continued to grow maize and beans despite the lost opportunity costs of not turning this land over to more profitable vegetables. These include their traditional beliefs -- although they are weakening as mentioned above -- which glorify maize, and the versatility of maize stalks as fodder or construction material. Moreover, the conservative nature of the small farmer cannot be discredited. In this sense, maize is grown as an insurance policy against potential vegetables crop or market failure.

As noted at the outset, many authors have criticized export-vegetable production for displacing basic grains. Although export crops clearly displace a large percentage of food crops, USAID has vehemently argued that successful vegetable farmers increase their subsistence crop yields, and thereby mitigate threats to household food security. These greater yields are attributed to superior crop knowledge and scientific inputs that are shared from export to subsistence crop. The findings from IFPRI's case study corroborate this

TABLE 4.6--CROPPING PATTERNS OF MEMBERS AND NON-MEMBERS, 1990^a

Status	Staple Crops	Export Vegetables	Local Vegetables ^b
(hectares)			
Member	0.18	0.38	0.04
Non-Member	0.3	0.03	0.03

^a Crop measurements exceed total land in production because most plots are inter-cropped.

^b Local vegetables are those either consumed by farmers or sold in local markets (carrots, beets, onions, chilies, tomatoes, cabbage).

affirmation. Quatro Pinos Cooperative members were found to have yields that were 30 percent higher on average than non-members from the same community (IFPRI, 1989:55).

The findings of the current survey support USAID's thesis; cooperative members generally have larger maize yields⁸⁵ per hectare, although smaller absolute yields. The amount of land devoted to staple crops is quite distinct as members devote roughly a third (0.18 hectares) of their land to subsistence crops, whereas non-members allocate over three fourths of their holdings to subsistence crops (0.30 hectares) (Table 4.6). Membership in the cooperative thus had a strong influence on cropping patterns.

Many members indicated that their maize yields had improved over the last few years. Figure 4.4 indicates that more than half of member farmers had yields above 6.1 metric tons per hectare. Four members were found in the lowest yield quintile. Of these farmers, one did not grow maize because he felt that export vegetable were more profitable. His income (U.S. \$1325.00), which was more than double the member median, suggests that he was not entirely misguided. Another of the four claimed that his crops were considerably

⁸⁵ Bean production, the other staple crop, was considered a weaker indicator of the yield differences between members and non-members. Both groups lamented consistent poor yields. Furthermore, 29 percent of export farmers did not grow beans during the survey year.

**FIGURE 4.4--MEMBER VERSUS NON-MEMBER MAIZE YIELDS
(quintiles)**

Farm Units

Note : Most farmers, members and non-members alike, suffered low maize yields due to high winds in December and January

damaged by the heavy rains of that season. The remaining two had only recently been inducted into the cooperative five and six months prior to the survey's running. They had not had enough time plant maize as members. Their yields could theoretically be attributed to the non-member group.

Non-member yields were evenly distributed through the first three quintiles. Two of the three outliers found in the largest quintile (7.4 - 12.4) were the largest non-member farmers surveyed who also grew export crops for roaming intermediaries. The non-members' lower yields may be attributed to the fact that 6 individuals were landless and perhaps were renting less productive land. This would correlate with the lower land rental fees reported by non-member farmers as well.

The members' smaller plots of maize yielded an average total of 0.95 metric tons relative to non-members' average of 1.3 metric tons per year. Members had a higher average yield per hectare (5.3 metric tons) relative to non-members (4.3 metric tons) (Table 4.7).

4.8 PESTICIDES

Although increased yields have been praised, the potential threats to humans and ecosystems from agro chemical inputs

TABLE 4.7--YIELDS OF MAIZE ON MEMBER AND NON-MEMBER FARMS, 1990

	Average Area Planted (hectares)	Average Total Yield (metric tons)	Average Yield per Hectare (metric tons)
Member	0.18	0.95	5.3
Non-Member	0.30	1.30	4.3

are rarely addressed by those who promote pesticide-intensive vegetables. The IFPRI study, for example, which purports to focus on nutrition, disregarded the issue. These omissions ignore the growing chorus of writers and activists who criticize vegetable cultivation for destroying the fertility level of highland soils. Declining yields and increased pesticide use have been reported in Quatro Pinos (Gardner et al., 1990:10) and in the highlands in general by a representative of the Guatemalan Peasant Committee of the Highlands (Cali, 7\05\92).

There have been few rigorous studies of pesticide usage in Guatemala and its effects on eco-systems and human health. What little has been published generally focuses on the Pacific coast where, as addressed in chapter 1, pesticide use rates and their externalities are among the highest in the world. The following data and interpretations are not meant to rigorously assess any of these trends in Magdalena. This would have required compatible data over a much longer time frame. The aim of this section is to compare recent levels of pesticide use on snow peas between members and non-members in Magdalena.

In 1979, Sanabria asserted, somewhat vaguely, that Magdalena growers were applying an astounding rate of 30 to 50 times more chemical fertilizers than recommended. Insecticides were also used improperly, in some cases due to faulty manufacturers' directions (Sanabria, 1980c:5-6).

Furthermore, farmers were said to be completely oblivious to plant diseases and means to control them.⁶⁶ At the time of Sanabria's investigations, the cooperative had very little contact with external technical assistance.

In 1990, pesticide use was predominant throughout Magdalena. All farmers who grew market vegetables, whether for local or

⁶⁶ These included maize rust, carrot yellowing, nematodes and the mediterranean fruit fly.

export markets, used them to ward off insects, worms and fungi that might decrease their yields. In comparison with cooperative members, non-members use pesticides in vast amounts. For example, snow peas are grown by six non-members. Their use of technological inputs illustrates the great gap between the two groups of farmers in terms of vegetable growing knowhow. Non-members apply 21 times the amount of pesticide, 4 times the amount of fungicide and 9.4 times the amount of herbicide that members apply (Table 4.8). Moreover, the average non-member yield (7.2 metric tons/ hectare) is roughly half that of cooperative members (13.9 metric tons/ hectare). There seems to be no constructive demonstration or diffusion effect taking place in Magdalena between those who successfully grow export produce and others attempting to emulate them.

TABLE 4.8--PESTICIDE USAGE OF MEMBERS AND NON-MEMBERS ON SNOW PEA CROPS PER HECTARE

	Insecticide	Fungicide	Herbicide
	(litres)	(kilos)	(litres)
Member	2.73	11.49	6.81
Non-Member	57.20	44.99	63.80

Note: Six non-member respondents (40 percent) grew snow peas. Only these six are represented in this calculations.

4.8.1 PESTICIDE CHECKS AND BALANCES

Theoretically, there are limits to the amount of pesticides that can be applied to vegetables. There is the expense to be considered, yet this can be recoup through higher yields that pesticide overuse often induces. There is another well-known institutional check on pesticide overuse.

Approximately 5 percent of Guatemalan export shipments are routinely monitored by the United States Food and Drug Administration (FDA) for pesticide residues and refused entry if levels exceed allowable standards (Clark, 19\12\89). In June 1989, for instance, snow peas and sugar snap beans were rejected by U.S. authorities because of excess levels of Dithiocarbamate, EZDZ (Zineb), Cholothonil, and Cithiocarbamates (El Gráfico, 26\03\90). For the entire year of 1989, the FDA reported that 45 shipments of Guatemalan cantaloupe and snow peas were rejected (quoted in Gardner et al., 1990:11). Farmers are aware of these inspections but point out that they are infrequent. Many restricted shipments are "quietly" rejected, farmers suggest, because of the U.S. government's fear of threatening USAID's investments in all components of its export strategy in the Guatemalan highlands.

Magdalena's vegetable farmers are nevertheless reminded at numerous cooperative meetings to take heed of these standards. One person over-applying pesticides could lead to

the rejection of an entire shipment of cooperative produce. Small organizations can ill-afford rejections. Some pesticides, known to be banned in the U.S., are nevertheless still used by farmers. Informal conversation revealed that "many cooperative members" continue to knowingly apply Round-up and Anthricol, especially when their plants first flower. Informants indicated that early fumigations with banned chemicals are rarely detected in the final product. These findings demonstrate that the so-called "pesticide boomerang," i.e., Northern chemical companies selling the majority of their products in the South, which returns as residues on Northern dinner plates, seems to be in good working order via Guatemala.

Clearly, the threats to health and the environment brought about by vegetable cultivation deserve closer consideration. Although environmental impacts have not been the focus of this research, they are by no means inconsequential, but rather fundamental to assessing the viability of export cropping as a valid, sustainable income-earning activity for rural dwellers.

4.9 CONCLUSIONS

Unlike many other cooperatives in the highlands, **Cooperativa Agrícola Magdalena** has been very successful at balancing the business side of its cooperative venture with its broader

goals of community development. The cooperative has done so in spite of decidedly refusing much of the external assistance offered. In addition, Malanecos prefer to have their own trustworthy community members in positions of authority. At present, this organization is an improvement over Quatro Pinos' more stratified structure. Unlike reports from Quatro Pinos, few CoAg members expressed anything but pride in their managerial orientation.

The indications from the data gathered in Magdalena revealed that, if certain conditions are met, small farmers can indeed produce more efficiently and increase their incomes. Small farmers spent their higher incomes in ways in which they consider increase their standards of living.

The cooperative, however, is not without its shortcomings. The entire enterprise is extremely dependent on one individual. There was no indication of a training program to diminish this vulnerability. Moreover, it remains to be seen how the group deals with expansion which will require the increased participation of middle management. Magdalena, like communities throughout the highlands, lacks skilled individuals needed to fill these positions.

While the incomes of member farmers tended to be much higher than those of independent farmers, there was a large spread

between members. This could presumably lead to socio-economic stratification both within the cooperative and within the community as a whole. Vegetables may be strengthening the highland bourgeoisie which, as recorded in chapter 2, has been growing since the 1960s.

Land concentration has also been encouraged by profitable vegetable production in Magdalena. While land purchasing rates were found not to be as high as in Quatro Pinos (this cooperative has probably been responsible for one of the most active land speculation markets in the highlands), they were nevertheless threatening non-members by boosting the price of rental lands. The majority of independent farmers interviewed suggested that they would like to join the cooperative to increase their incomes and lower input costs but found the high membership fee restrictive.

Export vegetable production is also strengthening labour demand in Magdalena. This is exacerbating the regional shortages that were prevalent throughout the 1970s. Hiring labour is costly for small farmers, however. They are not able to offer even half of what has been considered an acceptable living wage for an agricultural worker as defined by CUC. Nevertheless, the wages offered have attracted some hired hands. Approximately 0.6 full time jobs per member farmer were created. Horticulturists' sons were employed

more than the sons of milpa farmers. Perhaps intensive vegetable farming will be a means of ensuring that the next generation is able to make a living from farming rather than migrating to the cities. Labour contributions from spouses and daughters occurred, but to no significant degree.

Basic grain yields were found to be higher on member lands, as had been postulated by USAID and discovered by IFPRI in Quatro Pinos. This was not enough evidence in itself, however, to prove or disprove that vegetable farmers have enhanced their food security. An adequate assessment of this relationship calls for seasonal data, especially from the months furthest from the maize harvest. With respect to vegetable yields, non-members who grew export vegetables, or about 40 percent of the non-member sample, were found to have half the yields of member farmers while applying excessive amounts of agro-chemicals.

Much more empirical research needs to be conducted to determine the intensity and destructive properties of the specific agro-chemicals used by vegetable farmers. This would include an assessment of U.S. standards to judge whether they are appropriate in the distinctly different Guatemalan bio-regions. More important and crucial is the relationships among pesticide run off and the soils, ecosystems, and watersheds of Magdalena. There is strong

reason to believe that these resources, which Magdalena has so well protected, might be endangered.

CHAPTER 5: CONCLUSIONS

Small farmers in Guatemala's western highlands have eagerly responded to the promotion of export vegetables, one of the few income-earning opportunities introduced into the region in recent years. Magdalena's cooperative, like Quatro Pinos, managed to overcome small farm obstacles to become a producer-exporter venture. They have raised the incomes of their members and produced employment opportunities which may be better than the alternatives. Both cooperatives were fortunate enough to benefit from long experiences with vegetable production, and more importantly, outside technical and managerial assistance. They owe their present and continued success to ambitious individuals from elsewhere who continue to guide their businesses.

Unfortunately, the potential small farm gains outlined by IFPRI and USAID have probably run their course. As international aid flows subside, it is doubtful that any other cooperative-exporter will establish itself in the highlands. Without access to external assistance, few cooperatives will be able to afford the costs of bringing in the necessary external management to orientate production and export activities. What is more, the influx of medium size farmers, who seem to have overcome the production barriers that restricted them from growing for ALCOSA in the 1970s, will encourage more competition and eventually drive down

producer prices. Guatemala's rigid political and economic structures ensure that small farmers will not be able to compete on these terms. Aspiring small farmers will have to settle for contract farm agreements, which, as shown by ALCOSA, can be a risky undertaking.

Ironically, the USAID vegetable strategy will induce many marginal farmers to begin or increase their usage of agro-chemicals. Poor farmers, with expectations of tapping more lucrative markets, will begin to experiment on a corner of their plot with a handful of seeds and a jar of pesticide. Without technical know-how, the cultivators will have to rely on information from friends or relatives, or, lacking this advice, proceed while learning from mistakes. All the necessary inputs will be bought in small quantities at inflated retail prices. If a portion of the farmer's yields are market quality, they can be sold to roaming "coyotes," or sold directly to processing plants, in which case transportation costs would be incurred. Any increase to the efficiency of land and labour can be easily appropriated by middle-persons and processors who bid down the price to inflate their own profits, or lost in the price fluctuations of unstable markets.

Evidence from Sanabria's evaluation in 1979, and the high use-rates of chemicals by non-members in the case study,

indicate that without extension services many novices will over-use agro-chemicals. They will increase applications to compensate for a lack of technical knowhow. This may be part of a learning curve, but human and bio-physical health are sure to suffer.

Many broader political concerns have also been addressed. Few other studies have attempted to bridge the political ramifications and constraints under which the majority of powerless smallholders must function while producing vegetables. As a result, many authors over-estimated the government's desire and ability to balance the potential adverse effects to small farmers of vegetable cultivation by mere policy instruments. We are left wanting, for instance, when IFPRI dismisses the negative "macro-economic" effects by suggesting that they can be fine tuned with policy measures, such as income support and price subsidies (Braun et al., 1989:15). The authors of these recommendations have not understood the nature of Guatemala's ruling coalition.

The political and economic analyses presented in previous chapters indicate that it is not government policy that regulates these domains. Rural credit is controlled by banks with anti-peasant biases. Labour, characterized by regional over- and under-supplies, is generally motivated through coercion rather than legislation. There are limits to the

ability of high-powered aid agencies, even USAID, to persuade Guatemalan decision-makers of the utility of such policies. Moreover, even if the political will existed at the national level, such support and subsidy programs are frowned upon by the major international donors. Structural adjustment programs do not generally tolerate price support policies.

This research could be enhanced with more study. In addition to what has already been suggested, it would be worth while to explore the nature of small farm competitive advantage and the diseconomies to scale in production of vegetables. Did this ever exist or was it bestowed on small farmers because larger holders lacked experience with vegetable crops? Or was this perhaps political posturing of advocates who knew full well that small farmer enterprise would falter? It would also be useful to investigate the broader nature of minifundio farm systems in the rural periphery. The farms addressed in this study were located mainly in the rural core and subject to the influence of urban moderization. An in depth analysis of the effects of vegetable production on more marginalized producers would provide an worthwhile contrast to this thesis.

Appendix A Questionnaire

A.1 Purpose

The survey instrument consisted of a seven-page questionnaire administered to randomly selected male cooperative members and a four-page census administered to the female heads of each selected household (see Appendix C). Its purpose was to establish each household's resources (land and labour allocations); income (expenditure used as a proxy); changes within family labour allocation and market relationships; and changes in attitudes as a result of export crop production. These results are compared and contrasted with a control sample of farmers from the same community who have remained traditional agriculturalists, growing predominantly maize and beans (or milpa), with some vegetables for consumption and local markets.

A.2 Design

Most data required from respondents covered a recall period of one year. Short-term recall data, when requested, were interpreted in light of the season. All of selected respondents were interviewed. Women were interviewed, when possible, at the same time as their husbands to avoid complications resulting from often-experienced interference by husbands. The interference of children on behalf of their forgetful parents, however, was most welcome on a number of occasions. Questions specifically directed at men included those concerned with their land, agricultural techniques, yields, and future prospects. Women, for their part, were asked to expound on their labour allocation and their household expenditures.

A.3 Interviewing

All of the male respondents were interviewed by the author. Female household heads were interviewed by a hired sociology student from the National University of San Carlos who had prior surveying experience collecting socio-economic data in Guatemala City shanty towns. She was confident, capable and courteous. With her relevant experience, and a refresher course prior to conducting the survey, she proved to be well qualified in the interpersonal aspects of survey recording and recognized the importance of objectivity and probing without directing respondents. The womens' survey questions were designed in collaboration with Ana-Izabe', among others that will be mentioned below, which rendered them further comprehensible.

Both of the interviewers carried field diaries in which was recorded the date of each interview, the location and ambience, some indicators of trustworthiness and responsiveness, the ability of respondents to remember, and other notable subtleties. These extra details served as

double checks against which were gauged questionable statements and helped explain inconsistencies in survey responses.

A.4 Pre-Testing

The final version of the survey was the result of numerous pre-tests, discussions with key informants from the community, and consultations with colleagues at USAID and INCAP (Instituto de Nutrición de Centro América y Panamá). Due to the technical nature of highland agriculture, and my limited understanding thereof, a substantial amount of time was spent with farmers in their fields and homes, as well as weekly cooperative meetings where I learned about complicated farming systems. Contextual precision was greatly improved as a result. The assistance of the experienced institutional survey-takers rendered language and measurements more readily understandable, and improved the flow and thrust of questions. After a number of supervised trial runs in a neighbouring community, and corresponding revisions thereafter, we were confident that our survey instrument would serve its intended purposes.

A.5 Field Results

The questionnaire survey was administered between March 15 and April 3. This time period was the end of the dry, cold winter winds. Farmers were, by and large, preparing land and planting. Many had planted seedbeds and were awaiting rain with the knowledge that well-timed planting benefited from the first rains and the resulting flush of nitrogen.

Prior to running the survey, I began to attend weekly cooperative meetings. Here, I was introduced to both the members -- whose attendance was mandatory -- and the current issues that concerned them. The manager introduced me and my work and asked for complete and honest cooperation. At these meetings, I was able to meet and establish survey dates with the respondents who had been selected in the random sample.

A.6 Research Shortcomings

Most questionnaire surveys have elements that could be improved upon. This survey instrument was no different. First and foremost, the survey was very long and sometimes required more than an hour of direct question and answering to complete. This was recognized at the outset and incorporated into the design whereby questions requiring more involved thought were placed at the beginning. All questions asked have assisted in some way to form the interpretations presented. In terms of streamlining the data processing stage, each and every response could have been numbered. Problems were often encountered when transposing data from the survey sheets because the questions had one number yet 4 spaces for responses.

I also should have enquired about the basic grain seed varieties that are used by both members and non-members. This might have provided a clearer picture of what accounted for higher basic grain yields per hectare of members. The dynamics of land concentrations could have been further clarified if I had enquired about the source of new land purchases. Equally, I could have asked landless farmers if they ever had owned land, and if so, where had it gone. Further shortcomings were evident in the sampling procedure.

Appendix B The Sample Frame

B.1 Cooperative Members

The sample frame consisted of 119 active cooperative members. This figure excluded members who had been suspended for breaking agreed upon cooperative rules or those who had left on their own volition. Twenty-six cooperative members and their spouses were interviewed, or approximately 22% of the cooperative population. All members and non-members surveyed earned their living predominantly from agriculture.

To ensure that the sample was a true representation of reality, it was stratified according to a member's responsibility to the cooperative ideals. This was a readily available indicator, continually updated by the cooperative's directive. It is a vital measurement that underlies the ability of the cooperative to survive as an entity, and thus to continue to benefit its constituents.

Member responsibility was calculated based on a combination of two indicators: credit recuperation and the flow of produce from farmer to the cooperative processing plant. Members in the "C" category had an accumulated outstanding credit above 1000 quetzales and very few annual produce deliveries. A "B" rating was ascribed to members with credit debts between 500 and 1000 quetzales and a noticeable lapse in vegetable transfers to the processing plant. An "A" rating signified cooperative members in good standing with less than 500 quetzales outstanding credit debt and an acceptable flow of produce to the processing facility. Shortfalls in credit repayment or product delivery caused by weather or unsound agricultural practices by new members were shown leniency by the directive.

The total cooperative population was 119 members. This number was subdivided into 11 "C" members (9%), 16 "B" members (14%) and 92 "A" members (77%). These proportions were respected in the sample of 26. In an approximation of these sub-classes, two "C" rated households were interviewed, four "B" rated members interviewed and 20 "A"

rated households were interviewed. Resource constraints prevented the sample from being enlarged. Nevertheless, together the "C" and "B" rated households constituted a substantial sub-population of the cooperative's farm households.

This internal classification system was satisfactory but not ideal. It assessed honesty, commitment to cooperativism ideals, the ability to use credit efficiently and individual productive capabilities. In retrospect it would have better served the purposes of this study to have stratified by farm size. As it was, the 6 members had less than 0.25 hectares, 13 with holdings between 0.25 to 0.5 hectares and 7 with holdings of 0.5 hectares or more. A more equal distribution between sub-classes would have allowed for some tentative inter-class analysis.

B.2 Non-Members

Isolating and interviewing Magdalena farmers unassociated with the cooperative, or "non-members" as they have been identified throughout the text, proved more daunting. None of the common local institutions (including the municipality, school, or the health clinic) had a list of the community residents. Without pre-prepared lists, there was little alternative but to interview non-members encountered in their fields. Endeavouring to eliminate the obvious bias that would result from selecting only those farmers close to main roads, Ana-Izabel and I penetrated deep into the fields and valleys to find non-member respondents. Once preliminary contact was made, much more patience and hard work was necessary to convince these uninitiated persons that our study, and their participation therein, was worthwhile. Despite their heightened suspicions, all non-members approached collaborated with the interviewers. In the final analysis, the non-member sampling process was adequate given the constraints. The (n=15) sample size serves its purpose as a control, or comparison sample.

Appendix C.1

172

Survey of Male Farmers
(English Translation)
Magdalena Milpas Atlas

Interview No.: _____
Place: _____
Date: _____
Name: _____

I AM GOING TO SPEAK ABOUT THE AGRICULTURAL WORK YOU DO. I WOULD LIKE TO BEGIN, HOWEVER, WITH SOME PERSONAL DETAILS.

1- What is your age: _____

2- Do you read and write: YES/NO

3- What level did you reach in school:

- 3-1) _____ 1-3 primary
3-2) _____ 4-6 primary
3-3) _____ high school
3-4) _____ trade school
3-5) _____ university

4- (Members) What year did you enter the cooperative: _____.

4- (Non-Members) Do you have access to agricultural credit: YES/NO

IF AFFIRMATIVE: 4-1) from where: _____
how much: _____/year.

LET US TALK ABOUT YOUR LAND:

5- How many cuerdas of land do you own?: _____ TOTAL OWNED

6- Of these lands, how many cuerdas do you cultivate: _____ CULTIVATED

7- How many cuerdas do you rent form others: _____ RENTED

8- How many cuerdas are borrowed form others: _____ BORROWED

9- How many parcels of land do you have: _____ PARCELS

WE WILL SPEAK ABOUT THE AGRICULTURAL YEAR OF 1989-1990, FROM MARCH TO FEBRUARY.

10- How many parcels of "Humid" land did you cultivate in the past agricultural year:

- 10-1) _____cdas.; Sloping: YES/NO: Crop: _____
10-2) _____cdas.; Sloping: YES/NO: Crop: _____
10-3) _____cdas.; Sloping: YES/NO: Crop: _____
10-4) _____cdas.; Sloping: YES/NO: Crop: _____

11- How many parcels of "Hot" land did you cultivate in the past agricultural year:

- 11-1) _____cdas.; Sloping: YES/NO: Crop: _____
11-2) _____cdas.; Sloping: YES/NO: Crop: _____
11-3) _____cdas.; Sloping: YES/NO: Crop: _____
11-4) _____cdas.; Sloping: YES/NO: Crop: _____

13- How many quintales of chemical fertilizer did you use on your crops:

	Triple 15	Urea	Other
Maize / Beans:	_____qq	_____qq	_____qq
Ground Bean:	_____qq	_____qq	_____qq
Snow Peas:	_____qq	_____qq	_____qq
Sugar Snap:	_____qq	_____qq	_____qq
Squash / Zucchini:	_____qq	_____qq	_____qq
Broccoli:	_____qq	_____qq	_____qq
Wax Bean:	_____qq	_____qq	_____qq
Mini Vegetables:	_____qq	_____qq	_____qq
Local Market			
Vegetables:	_____qq	_____qq	_____qq

14- How many quintales of organic fertilizer did you use on your crops last year:

	Chicken Manure	Pig Manure	Cow Manure	Other
Maize / Beans:	_____qq	_____qq	_____qq	_____qq
ground Bean:	_____qq	_____qq	_____qq	_____qq
Snow Peas:	_____qq	_____qq	_____qq	_____qq
Sugar Snap:	_____qq	_____qq	_____qq	_____qq
Squash / Zucchini:	_____qq	_____qq	_____qq	_____qq
Broccoli:	_____qq	_____qq	_____qq	_____qq
Wax Bean:	_____qq	_____qq	_____qq	_____qq
Mini Vegetables:	_____qq	_____qq	_____qq	_____qq
Local Market				
Vegetables:	_____qq	_____qq	_____qq	_____qq

15- How many quintales of pesticides did you use on your crops last year:

	Insecticide	Fungicide	Foliant	Other
Maize / Beans:	_____qq	_____qq	_____qq	_____qq
ground Bean:	_____qq	_____qq	_____qq	_____qq
Snow Peas:	_____qq	_____qq	_____qq	_____qq
Sugar Snap:	_____qq	_____qq	_____qq	_____qq
Squash / Zucchini:	_____qq	_____qq	_____qq	_____qq
Broccoli:	_____qq	_____qq	_____qq	_____qq
Wax Bean:	_____qq	_____qq	_____qq	_____qq
Mini Vegetables:	_____qq	_____qq	_____qq	_____qq
Local Market				
Vegetables:	_____qq	_____qq	_____qq	_____qq

16- Of the following forms of soil conservation, which did you use:

16-1) Terraces:	YES/NO; _____cdas.
16-2) Construction of ditches mounds:	YES/NO; _____cdas.
16-3) Tree crops:	YES/NO; _____cdas.
16-4) Intercropping:	YES/NO; _____cdas.
16-5) Cultivation of prennial crops:	YES/NO; _____cdas.
16-6) Rotation of crops:	YES/NO; _____cdas.

Note: 1 quintale=100 pounds

17- Did the quality of your crops suffer from:

Worms: SI/NO _____qq Mi FS AC AD G/Z Br Ej VMin VLoc
 Carbon marks: SI/NO _____qq Mi FS AC AD G/Z Br Ej VMin VLoc
 Fungus: SI/NO _____qq Mi FS AC AD G/Z Br Ej VMin VLoc
 Too much Rain: SI/NO _____qq Mi FS AC AD G/Z Br Ej VMin VLoc
 Low Temperature: SI/NO _____qq Mi FS AC AD G/Z Br Ej VMin VLoc

17-1) How many quintales did you lose from these annoyances:

WE WILL CONTINUE TO DISCUSS THE AGRICULTURAL YEAR 1989-1990, FROM MARCH TO FEBRUARY.

18-Did you employ other persons, who were not members of your household to work on your land: YES/NO

IF NO:

18-1) Why: _____

IF AFFIRMATIVE:

18-2) Of the following forms of employing agricultural labour, which did you use:

-Reciprocal:	YES/NO
-Contract:	YES/NO
-Monthly (2-3 day/week)	YES/NO
-Monthly (6 days/week)	YES/NO

RECIPROCAL

18-3) How many times, and for how many days, did you work reciprocally:

1. _____ days; work: _____.
 2. _____ days; work: _____.
 3. _____ days; work: _____.
 4. _____ days; work: _____.

CONTRACT

18-4) How many contracts with labourers did you make last year:

1. Work: _____; _____ days; _____ persons; _____ Q/cda; _____ Q Total.
 2. Work: _____; _____ days; _____ persons; _____ Q/cda; _____ Q Total.
 3. Work: _____; _____ days; _____ persons; _____ Q/cda; _____ Q Total.
 4. Work: _____; _____ days; _____ persons; _____ Q/cda; _____ Q Total.
 5. Work: _____; _____ days; _____ persons; _____ Q/cda; _____ Q Total.
 6. Work: _____; _____ days; _____ persons; _____ Q/cda; _____ Q Total.

Explain what each contracted work was; how many days to complete; how many persons worked and how much each contract cost.

- 20- Besides reciprocal work, did you or your son(s) work as labourers on any other person's lands: YES/NO

IF AFFIRMATIVE:

20-1) How many days did you all work other lands:

Yourself: _____.
 Son #1: _____.
 Son #2: _____.
 Son #3: _____.
 Son #4: _____.

- 21- Besides agricultural earnings, did you or any other person in the household have other means of earning income:

- 22- I HAVE A LIST OF COMMON EXPENSES THAT I WILL READ. DO ME THE FAVOR OF INDICATING WHICH ONES YOUR FAMILY MADE LAST YEAR (FROM MARCH TO FEBRUARY).

- Home improvements: _____.
 - Tools for work: _____.
 - Domestic utensils: _____.
 - Home furnishings: _____.
 - Electrical appliances (recreation): _____.
 - Electrical appliances (domestic use): _____.
 - Machinery for work: _____.
 - New land parcels (in the future?): _____.
 - Land rental fees: _____.
 - Education for the children: _____.
 - Transportation expenses: _____.
 - None: _____.

- 23- In relation to the agricultural year of 1988-1989, how does this past year's income compare:

23-1) Worse _____.
 23-2) Same _____.
 23-3) Better _____.
 23-4) Much Better _____.

- 24- (Members) In your opinion, how do you see your future as a member of the cooperative:

- 24- (Non-Members) In your opinion, how do you see your future as an independant producer:

Survey of Female Heads of Households
(English Translation)
Magdalena Milpas Altas

Interview No.: _____
Place: _____
Date: _____
Name: _____

I AM GOING TO ASK QUESTIONS ABOUT FAMILY EXPENSES AND YOUR CONTRIBUTION TO AGRICULTURAL WORK. I WOULD LIKE TO BEGIN, HOWEVER, WITH SOME PERSONAL DETAILS.

1- What is your age: _____

2- Did you ever attend school: YES/NO

3- What level did you reach:

- 3-1) _____ 1-3 primary
- 3-2) _____ 4-6 primary
- 3-3) _____ high school
- 3-4) _____ trade school
- 3-5) _____ university

4- Do you read and write: YES/NO

5- How many children do you have: _____

6- State the name and age of each child:

NAME	AGE
6-1 _____	_____
6-2 _____	_____
6-3 _____	_____
6-4 _____	_____
6-5 _____	_____
6-6 _____	_____
6-7 _____	_____
6-8 _____	_____
6-9 _____	_____

AGRICULTURAL LABOUR

- 7- Did you work in agriculture last year: YES/NO
IF NO, GO TO QUESTION 9.

IF AFFIRMATIVE:

Of the following types of agriculture work, which four tasks did you do the most last year (March to February 1989-1990):

- 7-1) Preparation of soil:
- 7-2) Seed:
- 7-3) Fumigate:
- 7-4) Apply fertilizer:
- 7-5) Cultivate:
- 7-6) Weed:
- 7-7) Affix twine, dig holes (snow pea support):
- 7-8) Harvest:
- 7-9) Carry crops to the processing plant:
- 7-10) Carry water:
- 7-11) Remove post-harvest corn stalks:
- 7-12) Make seed beds:

8- REFERRING TO THE TABLE:

- 8-1) What months did you work in agriculture last year:
- 8-1) Of those months, how many days/month did you work:
- 8-2) Of those days, how many hours did you work:

	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
Days/Week												
Hours/Day												

- 9- Do you sell produce in the markets of Guatemala, Antigua or Amatitlan: YES/NO
IF NO, GO TO QUESTION 10.

IF AFFIRMATIVE:

- 9-1) In which months did you sell produce in those markets:

Mar; Apr; May; Jun; Jul; Aug; Sep; Oct; Nov; Dec; Jan; Feb.

- 9-2) HOW

MANY
TIMES
PER
MONTH: _____

- 9-3) Of the following answers, what did do with the money from the sales of vegetables:

-You bought personal necessities: YES/NO
-You bought food for the family: YES/NO
-You gave money to your husband: YES/NO
-Spent money after speaking with your husband: YES/NO

-Other: _____

PM-1 3½"x4" PHOTOGRAPHIC MICROCOPY TARGET
NBS 1010a ANSI/ISO #2 EQUIVALENT

PRECISIONSM RESOLUTION TARGETS

PIONEERS IN METHYLENE BLUE TESTING SINCE 1874

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- 10- Did your daughters work in agriculture or sell produce in the markets last year: YES/NO
IF NO, GO TO QUESTION 11

IF AFFIRMATIVE:

10-1) What type of work did your daughters do: _____,

_____.

(REFERRING TO THE TABLE)

10-2) Which months did they work:

10-3) Of those months, how many days/week did each work:

10-4) Of those days, how many hours/day did each work:

NAME:

Daughter 1	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
Days/Week												
Hours/Day												

NAME:

Daughter 2	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
Days/Week												
Hours/Day												

NAME:

Daughter 3	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
Days/Week												
Hours/Day												

- 11- I HAVE A LIST OF FAMILY EXPENSES. DO ME THE FAVOR OF INDICATING WHICH ONES YOU MADE LAST YEAR. INDICATE THE AMOUNT SPENT IN EACH CASE.

11-1 Medical expenses:

(medicines, pills, syrups)

_____ Q/months

11-2 Transportation (to the markets, social)

_____ Q/months

11-3 Soap, beauty accessories

_____ Q/months

11-4 Entertainment:

-per week

_____ Q/months

-per year (including numerous local festivals)

_____ Q/year

11-5 Clothing (including family - including festivals)

_____ Q/year

12- I HAVE A LIST OF FOOD ITEMS BELOW. DO ME THE FAVOR OF INDICATING THE QUANTITY CONSUMED BY YOUR FAMILY LAST WEEK. KINDLY EXPLAIN HOW MUCH OF EACH PRODUCTS YOU BOUGHT AND HOW MUCH OF EACH YOU PRODUCED ON YOUR OWN LAND.

	Bought	Home Production
12-1 Maize	_____ lbs	_____ lbs
12-2 Bread	_____ units	_____ units
12-3 Oats	_____ lbs	_____ lbs
12-4 Rice	_____ lbs	_____ lbs
12-5 Beans	_____ lbs	_____ lbs
12-6 Potatos	_____ lbs	_____ lbs
12-7 Casava	_____ piece	_____ piece
12-8 Sugar	_____ lbs	_____ lbs
12-9 Bananas	_____ doz	_____ doz
12-10 Plantain	_____ units	_____ units
12-11 Melons	_____ units	_____ units
12-12 Pineapple	_____ units	_____ units
12-13 Mangos	_____ 6 units	_____ 6 units
12-14 Oranges/ Manderins	_____ 6 units	_____ 6 units
12-15 Apples	_____ 6 units	_____ 6 units
12-16 Other fruits	_____ 6 units	_____ 6 units
12-17 Cabbage	_____ units	_____ units
12-18 Beets	_____ units	_____ units
12-19 Carrot	_____ doz.	_____ doz.
12-20 Lettuce	_____ units	_____ units
12-21 Peppers	_____ units	_____ units
12-22 Onions	_____ 6 units	_____ 6 units
12-23 Radish	_____ doz	_____ doz
12-24 Chayote	_____ doz	_____ doz
12-25 Chilies	_____ lbs	_____ lbs
12-26 Tomatoes	_____ lbs	_____ lbs
12-27 Broccoli	_____ units	_____ units
12-28 Cauliflower	_____ units	_____ units
12-29 Snow Peas/ Sugar snap Beans	_____ lbs	_____ lbs
12-30 Squash	_____ lbs/uni	_____ lbs/uni
12-31 Milk/Cream	_____ litres	_____ litres
12-32 Cheese	_____ lbs	_____ lbs
12-33 Butter	_____ lbs	_____ lbs
12-34 Meat	_____ lbs	_____ lbs
12-35 Eggs	_____ doz	_____ doz
12-36 Fish	_____ lbs	_____ lbs
12-37 Oil	_____ bottle	_____ bottle
12-38 Coffee	_____ lbs	_____ lbs
12-39 Soft drinks/ "Sweets"	_____ Q	
12-40 Other	_____ Q	

Appendix C.3

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Survey of Male Farmers (Spanish Original) Magdalena Milpas Atlas

No. de entrevista: _____
Lugar: _____
Fecha: _____
Nombre: _____

**VOY A HABLAR SOBRE EL TRABAJO QUE UD. HACE EN EL CAMPO EN LA AGRICULTURA.
PERO ANTES QUIERO TENER ALGUNOS DATOS DE SU PERSONA.**

1- Cuántos años cumplidos tiene ud.: _____

2- Sabe ud. leer y escribir: SI/NO

3- A qué grado llegó ud. en la escuela:

- 3-1) 1-3 primaria
- 3-2) 4-6 primaria
- 3-3) básico
- 3-4) diversificado
- 3-5) universitario

4- (Members) En qué fecha entró ud. en la cooperativa: _____.

4- (Non-Members) Tiene ud. acceso a crédito agrícola: SI/NO

SI AFIRMATIVA: 4-1) de donde; _____; Cuántas: _____/año.

PASAMOS A HABLAR DE SUS TERRENOS:

5- Cuántos terrenos suyos tiene (en cuerdas): _____ TOTAL PROPIO

6- De estos terrenos, cuántas cuerdas cultiva ud.: _____ CULTIVADA

7- Cuántas cuerdas tiene arrendadas: _____ ARRENDADAS

8- Cuántas cuerdas son cedidas o prestadas: _____ CED/PRESTADO

9- Cuántas parcelas de terrenos tiene ud.: _____ PARCELAS

HABLAMOS DEL AÑO AGRÍCOLA 1989-1990, DE MARZO A FEBRERO

10- Cuántas parcelas de terrenos húmidos cultivó ud. en el año agrícola pasado:

- 10-1) _____cdas.; Pendiente: SI/NO; Cultivo: _____
- 10-2) _____cdas.; Pendiente: SI/NO; Cultivo: _____
- 10-3) _____cdas.; Pendiente: SI/NO; Cultivo: _____
- 10-4) _____cdas.; Pendiente: SI/NO; Cultivo: _____

11- Cuántas parcelas de terrenos calientes cultivó ud. en el año agrícola pasado:

- 11-1) _____cdas.; Pendiente: SI/NO; Cultivo: _____
- 11-2) _____cdas.; Pendiente: SI/NO; Cultivo: _____
- 11-3) _____cdas.; Pendiente: SI/NO; Cultivo: _____
- 11-4) _____cdas.; Pendiente: SI/NO; Cultivo: _____

CUADRO DE SIEMBRAS

12- Dé los siguientes cultivos, que sembró ud. en el año pasado: (CHECK)

12-1) Cuántas cuerdas de (PRODUCTO) sembró: (INDICATE IN SPACE)

12-2) En qué fecha sembró (PRODUCTO):

12-3) En qué fecha cosechó por el última vez (PRODUCTO):

12-4) Cuál fue su rendimiento por cuerda de (PRODUCTO):

[illegible]

13- En el año pasado, cuántos quintales de abono químico uso ust. en sus cultivos:

	Triple 15	Urea	Otra
Milpa:	_____qq	_____qq	_____qq
Frijol S.:	_____qq	_____qq	_____qq
A. China:	_____qq	_____qq	_____qq
A. Dulce:	_____qq	_____qq	_____qq
Guicoy / Zuchini:	_____qq	_____qq	_____qq
Brócoli:	_____qq	_____qq	_____qq
Ejote:	_____qq	_____qq	_____qq
V. Miniaturas:	_____qq	_____qq	_____qq
V. Locales:	_____qq	_____qq	_____qq

14- En el año pasado, cuántos quintales de abono orgánico uso ud. en sus cultivos:

	Gallinaza	Cuchaza	Estericor	Otra
Milpa:	_____qq	_____qq	_____qq	_____qq
Frijol S.:	_____qq	_____qq	_____qq	_____qq
A. China:	_____qq	_____qq	_____qq	_____qq
A. Dulce:	_____qq	_____qq	_____qq	_____qq
Guicoy / Zuchini:	_____qq	_____qq	_____qq	_____qq
Brócoli:	_____qq	_____qq	_____qq	_____qq
Ejote:	_____qq	_____qq	_____qq	_____qq
V. Miniaturas:	_____qq	_____qq	_____qq	_____qq
V. Locales:	_____qq	_____qq	_____qq	_____qq

15- En el año pasado, cuántos quintales de pesticidas uso ud. en sus cultivos:

	Insectacida	Fungacida	Foliar	Otra
Milpa:	_____qq	_____qq	_____qq	_____qq
Frijol S.:	_____qq	_____qq	_____qq	_____qq
A. China:	_____qq	_____qq	_____qq	_____qq
A. Dulce:	_____qq	_____qq	_____qq	_____qq
Guicoy / Zuchini:	_____qq	_____qq	_____qq	_____qq
Brócoli:	_____qq	_____qq	_____qq	_____qq
Ejote:	_____qq	_____qq	_____qq	_____qq
V. Miniaturas:	_____qq	_____qq	_____qq	_____qq
V. Locales:	_____qq	_____qq	_____qq	_____qq

16- De las siguientes formas de conservación de suelos, cuáles usó:

16-1) Siembra en terrazas:	SI/NO; _____cdas.
16-2) Construcción de camellones, calzas o sanjas:	SI/NO; _____cdas.
16-3) Palos frutales en sus terrenos:	SI/NO; _____cdas.
16-4) Cultivos intercalados o mezclados en una cuerda:	SI/NO; _____cdas.
16-5) Siembra de cultivos protectores de la superficie:	SI/NO; _____cdas.
16-6) Rotación de cultivos:	SI/NO; _____cdas.

17- Tuvo ud. bajas en la calidad de sus cultivos causadas por:

Gusanos: SI/NO _____qq Mi FS AC AD G/Z Br Ej VMin VLoc

Manchas: SI/NO _____qq Mi FS AC AD G/Z Br Ej VMin VLoc

Hongos: SI/NO _____qq Mi FS AC AD G/Z Br Ej VMin VLoc

Demasiada
lluvia: SI/NO _____qq Mi FS AC AD G/Z Br Ej VMin VLoc

Bajas
temperaturas: SI/NO _____qq Mi FS AC AD G/Z Br Ej VMin VLoc

17-1) Cuántas quintales de sus productos perdió ud. por dichos
molestias: (READ LIST AGAIN)

SEGUIMOS HABLANDO DEL AÑO AGRCÍOLA 1989-90, DE MARZO A FEBRERO.

18- Empleó ud. otra persona u otras personas, que no sean miembros de su
casa, para trabajar en sus terrenos: SI/NO

SI NO:

18-1) porqué: _____

SI AFIRMATIVA:

18-2) De las siguientes formas de emplear ayudantes agrícolas, cuáles
usó ud.:

-Cucheval: SI/NO

-Por trato: SI/NO

-Por mes (2-3 días/semanas) SI/NO

-Por mes (6 días por semana) SI/NO

CUCHEVAL

18-3) Cuántas veces, y para cuántos días cada vez, trabajó ud.
cucheval:

1. _____ días; trabajo: _____.

2. _____ días; trabajo: _____.

3. _____ días; trabajo: _____.

4. _____ días; trabajo: _____.

POR TRATO

18-4) Cuántos tratos con ayudantes agrícolas hizo ud. el año pasado:

1. Trabajo: _____; _____ días; _____ personas; _____ Q/cda; _____ Q Total.

2. Trabajo: _____; _____ días; _____ personas; _____ Q/cda; _____ Q Total.

3. Trabajo: _____; _____ días; _____ personas; _____ Q/cda; _____ Q Total.

4. Trabajo: _____; _____ días; _____ personas; _____ Q/cda; _____ Q Total.

5. Trabajo: _____; _____ días; _____ personas; _____ Q/cda; _____ Q Total.

6. Trabajo: _____; _____ días; _____ personas; _____ Q/cda; _____ Q Total.

Explicame cuál fue cada trabajo contratado, cuántos días para
terminar, cuántas personas trabajaron y cuanto costó el trabajo
completo.

- 20- Aparte de trabajo cucheval, Trabajaron ud. o sus hijo(s) como ayudantes agrícolas en otros terrenos: SI/NO

SI AFIRMATIVA:

- 20-1) Cuántos días trabajaron ustedes en otros terrenos en el año pasado:

usted: _____.
 hijo #1: _____.
 hijo #2: _____.
 hijo #3: _____.
 hijo #4: _____.

- 21- Aparte de las ganancias agrícolas, tuvo ud., o alguna otra persona de la familia, otras maneras de ganar dinero en efectivo:

- 22- LEVO UNA LISTA DE GASTOS COMUNES QUE VOY A LEER. HAGAME EL FAVOR DE INDICAR CUALES HIZO SU FAMILIA EN EL AÑO PASADO (DE MARZO A FEBRERO).

- Mejoras a la vivienda: _____.
- Herramientas de trabajo: _____.
- Utensilios uso doméstico: _____.
- Muebles para la casa: _____.
- Aparatos eléctricos (uso recreo): _____.
- Aparatos eléctricos (uso Doméstico): _____.
- Maquinaria para el trabajo: _____.
- Compra de nuevas parcelas (en el futuro): _____.
- Arrendamiento de nuevas parcelas: _____.
- Educación para los hijos: _____.
- Gastos de Transportación: _____.
- Ninguno: _____.

- 23- En relación al año agrícola 1988-1989, como fueron sus ingresos agrícolas el año pasado:

- 23-1) peor _____.
 23-2) igual _____.
 23-3) mejor _____.
 23-4) mucho mejor _____.

- 24- (Members) En su opinión, como ve su futuro como socio de la cooperativa:

- 24- (Non-Members) En opinion, como ve su futuro como agricultor independiente:

Survey of Female Heads of Households
(Spanish Original)
Magdalena Milpas Altas

No. de Entrevista: _____
Lugar: _____
Fecha: _____
Nombre: _____

VOY A HABLARLE PREGUNTAS SOBRE LOS GASTOS FAMILIARES Y EL TRABAJO AGRICOLA QUE UD. HACE EN EL CAMPO. PERO ANTES QUIERO TENER ALGUNOS DATOS DE SU PERSONA.

1- Cuántos años cumplidos tiene ud.: _____

2- Fue ud. a la escuela cuando fue pequeño: SI/NO

3- A qué grado llegó ud. en la escuela:

- 3-1) _____ 1-3 primaria
3-2) _____ 4-6 primaria
3-3) _____ básico
3-4) _____ diversificado
3-5) _____ universitario

4- Sabe ud. leer y escribir: SI/NO

5- Cuántos hijos tiene: _____

6- Como se llaman cada uno de sus hijos e hijas:

NOMBRE	EDAD
6-1 _____	_____
6-2 _____	_____
6-3 _____	_____
6-4 _____	_____
6-5 _____	_____
6-6 _____	_____
6-7 _____	_____
6-8 _____	_____
6-9 _____	_____

LABORES AGRICOLAS

- 7- Trabajó ud. en la agricultura en el año pasado: SI/NO
SI NO, PASE A LA PREGUNTA NUMERO 9.

SI AFIRMATIVA:

De las siguientes formas de trabajar en la agricultura, cuáles cuatro tareas hizo ud. principalmente en el año pasado (marzo a febrero, 1989-90):

- 7-1) Preparación de tierra:
- 7-2) Siembra:
- 7-3) Fumigación:
- 7-4) Abonar:
- 7-5) Cultivar:
- 7-6) Quitar hierbas:
- 7-7) Poner pita o hacer hoyos:
- 7-8) Cosechar:
- 7-9) Cargar producto a la coop:
- 7-10) Cargar agua:
- 7-11) Limpiar milpa:
- 7-12) Hacer semilleros:

8- REFIRIENDOSE AL CUADRO:

- 8-1) En qué meses del año pasado trabajó ud. en la agricultural:
- 8-1) De estos meses, cuántas días/mes trabajó ud.:
- 8-2) De estos días, cuántas horas trabajó ud. diarios:

	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dec	Ene	Feb
Días/Mes												
Horas/Día												

- 9- Vende ud. productos en el mercado de Guatemala, Antigua o Amatitlan: SI/NO
SI NO, PASE A LA PREGUNTA NUMERO 10.

SI AFIRMATIVA:

- 9-1) En cuáles meses vendió productos en estos mercados:

Mar; Abr; May; Jun; Jul; Ago; Sep; Oct; Nov; Dec; Ene; Feb.

- 9-2) CUANTOS

VECES

POR MES: _____

- 9-3) De las siguientes respuestas, que hizo ud. con el dinero que ganó de sus ventas de verduras:

- Compró necesidades para si mismo: SI/NO
- Compró comida para la familia: SI/NO
- Dió dinero a su esposa: SI/NO
- Gastó dinero despues de hablar con esposo: SI/NO

-Otra: _____

- 10- Trabajaron sus hijas en la agricultura o de venta con ud.en el año pasado: SI/NO
SI NO, PASE A LA PREGUNTA NUMERO 11

SI AFIRMATIVA:

10-1) Qué clases de trabajos hicieron sus hijas: _____,

_____.

(REFIRIENDOSE AL CUADRO)

10-2) En qué meses trabajaron:

10-3) De estos meses, cuántas días/ mes trabajaron:

10-4) De estos días, cuántas horas trabajaron diarios:

Nombre:

Hija 1	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dec	Ene	Feb
Dias/Semana												
Horas/Dia												

Nombre:

Hija 2	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dec	Ene	Feb
Dias/Semana												
Horas/Dia												

Nombre:

Hija 3	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dec	Ene	Feb
Dias/Semana												
Horas/Dia												

- 11- LLEVO UNA LISTA DE GASTOS FAMILIARES. HAGAME EL FAVOR DE INDICAR CUALES HICIERON UDS EN EL AÑO PASADO. INDIQUE EL SUMO GASTADO EN CADA COSA.

11-1 Gastos para Salud:

(medicinas, pastias, jarabes)

_____ Q/mes

11-2 Transportación (al mercado, visitas)

_____ Q/mes

11-3 Jabones, accesorios de Belleza

_____ Q/mes

11-4 Entretenimientos y distracciones:

-por semana

_____ Q/mes

-por año (incluya gastos de S. Santa,

Feria titular, Navidad, Día de los s.)

_____ Q/año

11-5 Ropa (toda la familia-fiestas incluso)

_____ Q/año

12- LLEVO UNA LISTA DE COMIDA ABAJO. HAGAME EL FAVOR DE INDICAR LA CANTIDAD CONSUMIDO POR SU FAMILIA EN LA SEMANA PASADA. DIGAME PORFAVOR CUANTO DE CADA PRODUCTO COMPRARON Y CUANTO DE CADA PRODUCTO PRODUCERON EN SUS TERRENOS PROPIOS.

	Comprado	Produccion Propio
12-1 Maíz	_____ lbs	_____ lbs
12-2 Pan	_____ unidades	_____ unidades
12-3 Atol/ Mosh	_____ lbs	_____ lbs
12-4 Arroz	_____ lbs	_____ lbs
12-5 Frijol	_____ lbs	_____ lbs
12-6 Papas	_____ lbs	_____ lbs
12-7 Yuca	_____ pedazo	_____ pedazo
12-8 Azúcar	_____ lbs	_____ lbs
12-9 Banano	_____ doz	_____ doz
12-10 Platano	_____ unidad	_____ unidad
12-11 Sandía/Melon	_____ unidad	_____ unidad
12-12 Piña	_____ unidad	_____ unidad
12-13 Mango	_____ mano	_____ mano
12-14 Naranja/Mandarína	_____ mano	_____ mano
12-15 Manzana	_____ mano	_____ mano
12-16 Otras Frutas	_____ mano	_____ mano
12-17 Repollo	_____ unidad	_____ unidad
12-18 Remolacha	_____ unidad	_____ unidad
12-19 Zanahoria	_____ doz.	_____ doz.
12-20 Lechuga	_____ unidad	_____ unidad
12-21 Pepino	_____ unidad	_____ unidad
12-22 Cebolla	_____ mano	_____ mano
12-23 Rábino	_____ doz	_____ doz
12-24 Guisquil	_____ doz	_____ doz
12-25 Chile	_____ lbs	_____ lbs
12-26 Tomate	_____ lbs	_____ lbs
12-27 Brocoli	_____ unidad	_____ unidad
12-18 Coliflor	_____ unidad	_____ unidad
12-29 A. China/Dulce	_____ lbs	_____ lbs
12-30 Guicoy	_____ lbs/uni	_____ lbs/uni
12-31 Leche, Crema	_____ litros	_____ litros
12-32 Queso	_____ lbs	_____ lbs
12-33 Manteca	_____ lbs	_____ lbs
12-34 Carne	_____ lbs	_____ lbs
(Rez, Coche, Pollo)	_____ lbs	_____ lbs
12-35 Huevos	_____ doz	_____ doz
12-36 Pescado	_____ lbs	_____ lbs
12-37 Aceite	_____ botella	_____ botella
12-38 Cafe	_____ lbs	_____ lbs
12-39 Aguas, golosinas	_____ Q	
12-40 Otras Comidas	_____ Q	

**Labour Schedule
(Spanish Original)
Magdalena Milpas Altas**

Nombre: _____

MAIZ

[illegible][illegible][illegible]

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VERDURAS LOCALES (Zanahoria, Remolacha, Repollo, Rábano)**FLORES/ FRUTALES**

OTRAS

[illegible]

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GUICOY / ZUCHINI

BROCOLI

VEGETALES MINIATURAS (nabo, zanahoria, rábano)[illegible]

LIST OF ABBREVIATIONS

ACDI (USAID)	Agricultural Cooperative Development International	Desarrollo Cooperativa Agrícola Internacional
ALCOSA	Hanover Brands Subsidiary, U.S.A.	Alimentos Congelados Monte Bello, S.A.
BANDESA	Agricultural Development Bank (Guatemala)	Banco de Desarrollo Agrícola
CACIF	Chamber of Agri- cultural, Commer- cial, Industrial, and Financial Institutions.	Comité Coordinador de Asociaciones Agrícolas, Commer- ciales, Industri- ales, y Financieras
CACM	Central American Common Market	Mercado Común Centroamericano
CoAg	Agricultural Cooperative Magdalena	Cooperativa Agrícola Magdalena
CLUSA	The Cooperative League of the U.S.A.	Liga Cooperativa de los Estados Unidos
CUC	Peasant Unity Committee	Comité de Unidad Campesina
FTN	The Northern Transversal Strip	Franja Transversal del Norte
GEXPRONT	The Non-Tradi- tional Products Exporter Guild	Gremial de Exportadores de Productos no Tradicionales
ICAITI	Central American Institute of Research and Industrial Technology	Instituto Centroamericano de Investigación y Tecnología Industrial

IDB (BID)	Inter-American Development Bank	Banco Inter- americano de Desarrollo
IFPRI	International Food Policy Research Institute	Instituto para la Investigación de la Política Alimentaria
IICA	Inter-American Institute for Agricultural Cooperation	Instituto Inter- americano de Cooperación para la Agricultura
INTA	Institute of Agricultural Transformation	Instituto de Transformación Agrícola
IMF	International Monetary Fund	Fundo Monetario Internacional
INACOP	National Institute of Cooperatives	Instituto Nacional de Cooperativas
LAAD	Latin American Agribusiness Development Corporation	Corporación Latino americano para el Desarrollo Agri- Industria
PROEXAG	Non-Traditional Agricultural Export Support Project (USAID)	Proyecto de Apoyo a los Exportes Agrícolas no Tradicionales
ROCAP	Regional Office for Central America and Panama (USAID)	Oficina Regional para Centro america y Panama
USAID	The United States Agency for International Development	Agencia Estados- Unidense para el Desarrollo Internacional

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**Barrera, Adolfo, (12\02\90), Department of Economics, University
of San Carlos (UASC), Guatemala.**

**Bezmalinovic, Beatrice, (numerous), Overseas Development Council
(ODC).**

Bressière, Andre, (10\02\90), Helveta (Swiss NGO).

Buc Bach, Rafael, (25\01\90), Asociación Agrícola Acualá.

**Cali, Francisco, (07\05\92), Guatemalan Peasant Committee of the
Highlands, interviewed in Ottawa.**

**Clark, Richard, (19\12\89), Non-Traditional Agricultural Export
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**Castañeda, Cesar, (13\03\90), Department of Agronomy, University
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¹ All interviews took place in Guatemala unless otherwise indicated.

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- Cornick, Tully, (11\12\89), Information Officer, **USAID**.
- Dávila, Sylvia, (07\12\89), **Inter-American Foundation (IAF)**.
- Demencos, Maria Antoineta, (10\11\89), **Asociación de Investigación y Estudios Sociales (ASIES)**.
- Elasser, Theodor A., (22\12\89), **Lico & CIA Ltda.**
- Fledderjohn, David, (14\12\89), Cooperative Strengthening Program (**COSEP\USAID**).
- Gallegos, Benjamin, (13\12\89), **Instituto Interamericano de Cooperación Agrícola (IICA)**.
- González, Alma L., (13\12\89), **Asociación de Instituciones de Desarrollo y Servicios no Gubernamentales de Guatemala (ASINDES ONG's)**.
- Marban, Rocia, (15\11\89), **Instituto Centroamericano de Investigación y Tecnología Industrial (ICAITI)**.
- Marroquin, Mario, (30\01\90), Project Officer, **Canadian International Development Agency, (CIDA)**.
- Mush, Fidencio, and Maximino Gabriel, (27\11\89), farmers from **Rincón Chiquita, Zaragosa, Chimaltenango**.
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- Ramires, Helen, (05\02\90) **Instituto de Nutrición de Centro America y Panama (INCAP)**.
- deRecinos, Clara, (12\03\90), **Asociación para al Avance de las Ciencias Sociales en Guatemala (AVANSCO)**.
- Sandbach, John, (26\02\90), **Cooperative League of the United States of America (CLUSA)**.

Smith, Gary, (numerous), Agricultural Diversification, USAID.

Wendell, Hal, (25\11\89), Christian Children's Fund (CCF).

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