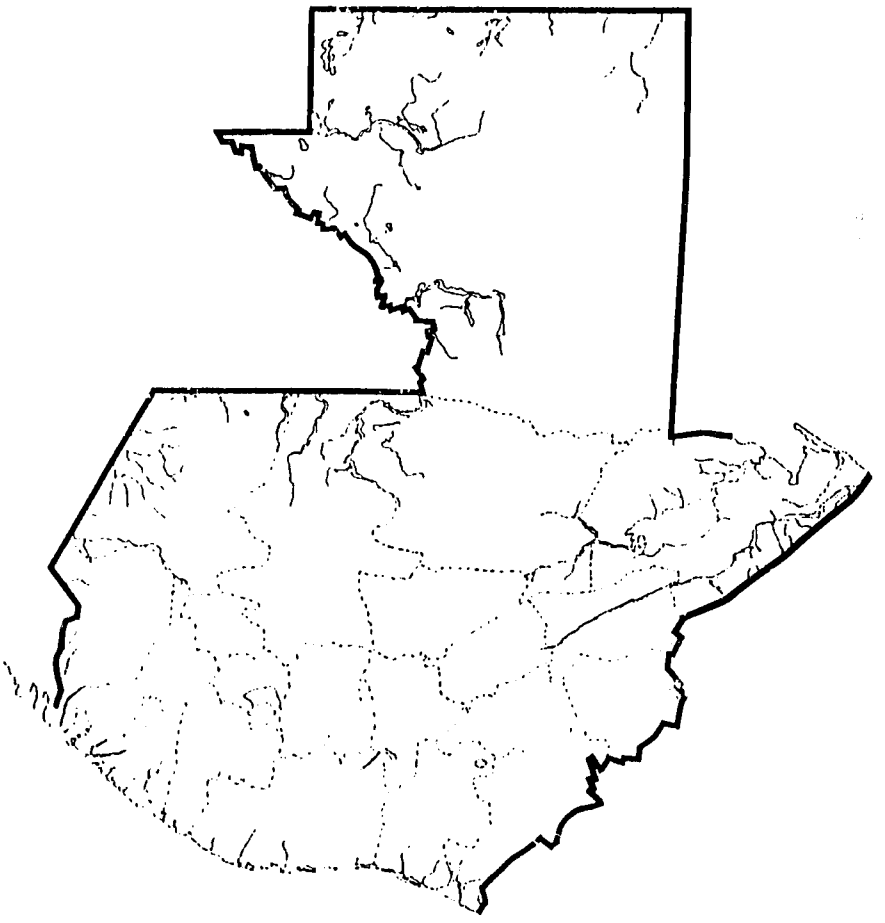
PN-ABF-303

Central America Regional Transportation Study

Guatemala

June 1987



Parsons Brinckerhoff 100 YEARS

presented to
United States Agency for International Development
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Guatemala

presented by
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EXECUTIVE SUMMARY

This report evaluates transportation in Guatemala and recommends ways to reduce transport-related constraints to the increased export of non-traditional products (products other than the traditional bananas, coffee, sugar, and meat).

The full study consists of six national reports and one regional report. It was sponsored by the United States Agency for International Development (USAID) through the Regional Office for Central America and Panama (ROCAP) to help USAID missions in the region understand the role of transportation in the export of non-traditional products. Increasing such exports supports the Caribbean Basin Initiative (CBI) for a healthy regional economy based on greater and more varied exports to the United States and other nations.

Interviews and fact-gathering in Guatemala and in the United States showed that many factors, both physical and institutional, limit the export of non-traditional products through the relatively high cost of transportation.

Physical Limitations. Guatemala's volume of non-traditional exports is modest: less than 100,000 tons per year. Guatemalan exporters experience, in general, higher total freight charges than those facing any other exporters in the study, except for El Salvador. These charges are largely attributable to the actual expenses of sea freight and of the relatively long trucking distances to bring products to the ports; they can be reduced by a combination of measures that improve port and trucking efficiency. Such measures include new equipment at Puerto Santo Tomás, improvement of port and road equipment maintenance, and the construction of freight consolidation facilities.

Institutional Limitations. Factors that serve to limit the efficiency with which a transportation system is used, as distinct from limitations in physical facilities, are termed "institutional"; streamlining them can increase exports at no capital cost. Trucks now run empty to make pickups, but coordination can cut the costs associated with such inefficiencies. The existing legal and commercial systems may, in some circumstances, offer exporters inefficient and uncertain procedures, but relatively simple changes in law or in the way exporters are represented can make exporting both simpler and more reliable.

The Basis for Recommendations. The report records numerous suggestions from persons interviewed, as well as programs devised by the study team itself, and should be viewed as a storehouse of possiblities. Prioritized recommendations, however, were made on a very specific basis: appropriateness for short-term action, and appropriateness for implementation on a national level, as opposed

to a regional level. Actions that might best be left for groups other than USAID are not omitted from the prioritized recommendations, as these may attract the attention of groups other than USAID.

Relative costs and benefits were estimated for each prioritized recommendation and recommendations were ranked within the two categories, physical and institutional. Relative benefits are estimated as the amount by which each action can increase total export of non-traditional products.

Recommendations--Physical

1. Port Equipment for Santo Tomas
   Approximate cost: $3 million
   Approximate benefit: $28 million increased sales
   Time frame: by 1990

2. Review of Port Equipment Repair and Maintenance Facilities
   Approximate cost: $300,000 (study only)
   Approximate benefit: $5 million increased sales
   Time frame: study 1988
   implementation & procurement 1989-1994

3. Review of Road Repair and Maintenance
   Approximate cost: $500,000 (study only)
   Approximate benefit: $2.5 million increased sales
   Time frame: study 1988
   implementation & procurement 1989-1994

4. Container Freight Stations
   Approximate cost: $2.4 million
   Aproximate benefit: $10 million increased sales
   Time frame: location, design etc 1988
   construction 1989-1992

5. Refrigerated Warehouses
   Approximate cost: $1.8 million each
   Aproximate benefit: $4.5 million increased sales
   Time frame: study 1988/1989
   construction 1989-1993

Recommendations--Institutional

1. Contract Law Amendments
   Approximate cost: not known
   Approximate benefit: $13 million increased sale minimum per year
   Time frame: study 1988-1990
   immediate programs 1990-1995
   long-term programs 1990-on

2. Overseas Representation
   Approximate cost: $500,000 per year
   Approximate benefit: $7 million increased sales
   Time frame: open office 1988/1989

3. Group Problem-Solving Assistance
   Approximate cost: $300,000 per year
   Approximate benefit: up to $4.5 million increased sales
   Time frame: start program 1988

4. Simplified Export Procedures
   Approximate cost: $250,000 per year (estimated)
   Approximate benefits: $7 million annual sales increase (target)
   Time frame: 1988 on

5. Education Programs
   Approximate costs: $1 million total annual budget
   Approximate benefits: $1.5 million annual sales increase
   Time frame: 1988 on

6. Increase Number of Customs Inspectors at US Ports or Prinspection
   Approximate cost: $170,000 per year
   Approximate benefit: $3.0 million increased sales per year
   Time frame: 1987/88

These recommendations result from an in-depth look at problems facing the exporters of non-traditional products and an attempt to rank remedies by their relative costs and benefits. The analysis convinced those preparing this study that the problems of transportation and exports were deep-seated, and that simple and quick remedies were non-existent. It was also found that, while there was a definite need for capital improvements to the transportation infrastructure--investments that could easily be justified at the national level of costs and benefits--the low value associated with non-traditional exports resulted in little justification for major capital projects in terms of benefits to these exports alone. Furthermore, the study team concluded that priority should be given to the major institutional recommendations, in the expectation that these would create the best environment for more effective use of the existing infrastructure.

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CHAPTER 1

INTRODUCTION TO THE STUDY

SYNOPSIS

Parsons Brinckerhoff International, Inc., has been commissioned by USAID, as part of Contract No. OTR-0000-I-00-6071-00, to supply technical services in Central America in the form of a study for the Central America Regional Transport Project. The objective of the study was to produce a series of reports that would enable the Regional Office for Central America and Panama (ROCAP) and the USAID missions to understand more fully the role of transportation in the development and promotion of extra-regional and intra-regional trade in non-traditional exports, and to assist in the formulation of proposals for the removal of the identified transportation-related problems. Recent experiences in the region have concluded that initiatives by ROCAP and the Central American bilateral USAIDs in support of non-traditional exports have invariably encountered transportation-related problems which have dampened the anticipated impact of the programs.

To complete the contract requirements, a study team was proposed which, for the six countries given (Belize, Costa Rica,

El Salvador, Guatemala, Honduras, Panama), identified land, sea, and air transportation constraints inhibiting private sector exports of Caribbean Basin Initiative and Central American Initiative non-traditional products in both intra- and inter-regional markets, and to recommend means for removing these constraints. For the recommended means, order-of-magnitude costs and time frames were to be developed.

A non-traditional export was to be considered any product other than the traditional export products of coffee, sugar, beef, cotton, and bananas.

A constraint was to considered any condition which served to lessen service quality, increase transport costs, or reduce producer incentives to generate non-traditional products.

The results of the study were to be contained in seven reports: one for each of the countries and one covering the region as a whole.

The study was conducted in three phases:

Phase I - US review of documentation, consultations and survey methodology development

Phase II - Field interviews, documentation research and survey research

Phase III - Analysis of needs and prioritization of recommendations.

A study team of one transportation economist and two transportation engineers provided services both in the USA and in Central America, while a third transport engineer provided additional services solely in the USA. A total of 21 weeks was allowed from the start of the contract to the submission of the draft final report to ROCAP. Work started on the project in the USA on Monday, September 29, 1986.

This report, then, presents the results of the study for one of the subject countries: Guatemala. It contains a detailed review of the economic, institutional, physical, and operational aspects of the country and its transportation system and the effects that all these have on the exports of non-traditional products. The report identifies problems that are having an inhibiting effect on the export of the non-traditional products, and makes recommendations for their removal or amelioration. The report makes a particular effort to present the views of the exporters themselves regarding transportation, and discusses the accuracies and possible misconceptions contained in these views.

BACKGROUND

Legislators, policy formulators and administrators, and responsible observers--in both the public and private sectors--in the United States and in Central America have recognized that the recent economic decline in the region has deep roots and that the

resulting political, economic, and financial disequilibrium is not likely to be self-correcting. A major surge in the primary commodity price levels so critical to the current economic health of the region is not a near-term probability. Indeed, the December 1986 decision by the United States to reduce its sugar imports from Latin America and the Caribbean by 41% in 1987 will put downward pressure on world sugar prices. A comparable decision on meat imports from the region will also have a destabilizing impact on world prices.

Regional protectionism appears to be on the rise, with the obvious negative impact on trade between the individual Central American nations. Political tensions--and the widespread, often exaggerated, perception of these tensions--serve to limit investor confidence in the countries of the region and to restrain critical capital inflows.

This critical--and potentially worsening--situation has given rise to the political and legislative background for planned AID regional and bilateral programs in Central America: the 1984 enactment of the Caribbean Basin Initiative (CBI) and the follow-up Central American Initiative (CAI).

The CBI and CAI programs are designed to stimulate investment and trade in the several Central American nations. The arch of the CBI and CAI programs is easier access to the US market. In order to add to the concrete value of this improved access, an increased program of foreign economic assistance is being undertaken by ROCAP and the Central American bilateral USAIDs.

An important focus of the proposed interventions is on assistance to exporters of products that are "non-traditional" to the countries of the region. The "traditional" exports are the major commodities, such as bananas, coffee, cotton, sugar, and meat, while the "non-traditional" are all the other items of export that can compete in world markets.

Previous interventions and bilateral USAIDs have encountered serious obstacles that have been identified as being transportation-related. In an effort to investigate the validity and dimensions of the impediment, this study was commissioned.

The study sought to achieve its objectives by

- A review of existing documentation related to sea, air, and land transportation and infrastructure distribution, including economic trends, cargo volumes, and previous Central American transportation studies.

- Consultation with institutions, organizations, companies, and individuals in the USA who are or have been involved with the export of non-traditional products in the region.

- Interviews in each of the identified countries with individuals and groups such as

  Growers and exporters of non-traditional perishable agricultural products;

  Exporters of other non-traditional export products;

Importers of inputs to the non-traditional sector;

Chambers of Commerce, industry, and manufacturing;

USAID private sector officers and rural development officers;

Government ministers with responsibilities related to the transport of non-traditional commodities;

Export promotion councils;

Shippers' councils;

Airlines, ocean shipping companies, truckers, and ports and airports;

Shipping agents, freight forwarders, customs brokers, and customs officials.

- Identification of both institutional and structural constraints affecting the operating efficiency and cost of roads and road transport, railways, aviation, and ports and maritime transport.

- Analysis and formulation of prioritized interventions that should be undertaken to improve the quality of transport service and to reduce its cost, as related to the movement of non-traditional products to market.

OUTLINE METHODOLOGY

The approach adopted started with an analysis to derive a definitive list of non-traditional exports for each country. For this purpose, published trade statistics, such as those contained in the UN Yearbook of International Trade, were analyzed and abstracted.

Dividing work between the United States and Central America, the team recognized from the start that the transportation-related constraints on Central American industries may not be located in those countries themselves, but in the United States. The transportation chain from producer to market was seen as a long one, and solving a problem observed at one point in the chain may in fact depend on solving other problems far down the chain, perhaps in another country. The choice of the US importing port, for example, could affect transportation cost and efficiency as much as the choice of the exporting port in the country of origin. Thus time was spent in the early stages of the study interviewing US-based exporters, shipping company representatives, trade groups, international agencies, local embassy officials, and representatives of the major ports serving Central America.

The approach that was actually used in the field by the study team in this case was a studied compromise. While interviews with users, shippers, carriers, and agencies were being conducted in the USA, the export figures of the countries were studied to arrive at a definitive list of traditional and non-traditional

exports. The information collected in the USA was used to develop a first cut at a list of names of individuals and organizations in each of the target countries who would have to be interviewed to obtain greater details on the nature of the products and the nature of the constraints. Interviews in Central America sought to obtain an idea of the potential for the export product to grow, a measure of the relationship between the price of the product on the open market and the cost of remedial transportation-related work, and an idea of what products could be aggregated to benefit from the same improvements. Before formulating any recommendations for improvements or amendments, officials of national governments and international agencies were questioned, where appropriate, to ensure that no plans were being formulated by others that would pre-empt or otherwise override any proposals contained in the reports of this study. Hence, the final reports contain prioritized lists of products whose export volume could be significantly increased by suggested improvements or modifications to the transportation infrastructure, both physical and institutional. Modifications or improvements that would be better introduced on a regional basis, rather than country-by-country, are included in the regional report.

In addition to interviews, the study team used available documents, such as relevant studies, Central Bank reviews, ministry papers, USAID memoranda, and newspaper and magazine articles. On-the-spot investigations were made as needed. Thus major ports and airports were inspected, particularly since their efficiency would affect several industries at once. In many cases producers of similar export items had similar constraints, and the flexible interviewing schedule allowed the team to pursue such common concerns through directed questioning and on-the-spot inspections.

Thus if interviewees perceived roads as a problem, the team sought to drive the roads in question.

The results of the studies were written up in the USA under the following headings:

- o geography, climate, and demographics
- o the export of non-traditional products
- o national transportation
- o conclusions and recommendations
- o economy and trade

The analysis of each nation's non-traditional exports was done within the classification framework of the internationally accepted Standard International Trade Classification (SITC), Revision 3. The adoption of this system was considered fundamental to the study, in giving it a consistent and systematic framework within which to analyze the information collected regarding the wide range of non-traditional products.

The studies were produced in the form of seven separate reports: one each for Belize, Guatemala, Honduras, El Salvador, Costa Rica, and Panama, and one report covering the region as a whole.

Metrication

The metric system of weights and measures has been adopted for this series of reports. Only where industry standards are normally quoted in pound-feet units (e.g. 20-foot containers) is this alternative system used. Thus tons and metric tons refer to 1,000 kg throughout.

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CHAPTER 2

GENERAL

GEOGRAPHY AND CLIMATE

Guatemala is one of the largest of the Central American nations (108,889 square kilometers). On the north and west, it borders Mexico. It has a frontier with Belize in the north east and with El Salvador and Honduras to the south and south east. The country has both Pacific (240km) and Atlantic (112km) coastlines.

Despite the much greater length of the Pacific coast, however, the only navigable rivers are those flowing eastward into the Gulf of Honduras on the Atlantic coast. Partly in consequence, ports developed first on the Atlantic coast, with only the recently-established Puerto Quetzal counting as a major Pacific coast port. The greater reliance on Atlantic Coast ports is, however, common to the development pattern of all nations in the region.

The nation has three major topographical divisions: there is a narrow tropical coastal lowland along the Pacific; the cooler central highlands; and the northern lowland plains of Petén. The country lies within a volcanic belt with numerous volcanoes in the south. A major earthquake occurred in 1976 and destroyed many sections of Guatemala City.

Guatemala
Provinces

The climatic zones reflect the major topographical features. The lowlands are tropical with average temperatures around 28°C. The average is about 20°C in the temperate areas of the highlands. In Guatemala City, the average daily temperature in the hottest month, May, ranges between 16°-29°C. January is the coldest month with daily ranges of 12°-23°C. Rainfall in the capital varies considerably. It is lowest in February (3 mm) and highest in June (274 mm). On average, annual rainfall in the lowlands is four times that in the capital.

Highland cities like Guatemala City have attracted population because of this temperate, though sometimes rainy, climate. Overall, Guatemala's geography and climate have given it the settlement pattern typical of Central American nations, with population and many industries tending to cluster in the temperate highlands, at a distance from the coastal ports.

POPULATION

Current population is estimated to be some 8 million. The most densely populated areas are the central highlands. The least populated area is El Petén province in the north. Some 68% of the nation lives in rural areas. Many of them are outside the cash economy and outside the dominant social and cultural patterns. Some 56% of the population is literate, though in some localities the population in totally illiterate.

Guatemala City has a population of almost 2 million and is the largest city. Quetzaltenango--200 kilometers west of the capital--has a population of some 95,000 and is the second largest city. About half the population is Indian. Most of the rest is

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of mixed Spanish/Indian blood known as "ladinos." The west and north tend to be inhabited by Indians while the ladinos are concentrated in the south and east.

Population growth is high, with an average annual gain of 2.9% since 1970. Primarily as a result of declines in infant mortality, life expectancy at birth has risen to about 59 years.

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CHAPTER 3

EXPORT OF NON-TRADITIONAL PRODUCTS

As was stated in the outline descrition of the methodology, the study used as its basis interviews with the exporters of non-traditional products. A selected group of exporters, or their representatives, were asked to describe the transportation system that they used when exporting their product, and were asked to describe what, in their opinion, were the main problems related to those transportation modes.

Prior to examining the interview findings, however, this section of the report looks at published trade statistics for both traditional and non-traditional products for Guatemala.

OVERVIEW OF TRADITIONAL PRODUCTS

As with many of the other countries in the region of Central America, Guatemala has an official list of traditional exports. The Banco de Guatemala lists exports as either "principal," "Central American trade," or "other products." A typical list for 1985 is given in Table 3.1.

Table 3.1

Guatemala

Main Exports 1985

(thousands of Quetzales)

	Value	
Principal Products	657,103.4	
Coffee		323,528.2
Meat		73,790.0
Cotton		59,537.8
Cardamon		50,646.6
Bananas		42,837.3
Sugar		33,253.9
Petroleum		8,456.7
Central American Trade	207,756.9	
Other Products	155,711.3	
Chemical Products		20,808.4
Tobacco, leaf & processed		13,040.9
Sesame Seed		9,246.8
Flowers, Plants, Seeds, Etc.		9,022.2
Vegetables		8,608.7
Shrimps, Fish, Lobster		7,434.8
Processed Honey		6,120.6
Food Products		5,650.0
Natural Rubber		4,693.8
Clothing		2,595.0
Glass Products		2,515.6
Fruits & preparations		2,375.1
Cloth, Threads, Yarns		2,363.7
Bee Honey		1,862.2
Wood, Wood Products		1,654.3
Oil Essence		1,172.1
Minerals		896.7
Metal Products		632.2
Cocoa		607.8
Hand Crafts		539.4
Others		6,787.1
Re-exports		23,618.4
Total, All Exports	1,020,571.6	

Source: Customs of Guatemala

Exchange Rate: Q/1 = US$ 1

Thus, "principal" exports accounted for 65 percent of all exports in 1985. Trade with Central America accounted for 20 percent, while all other trade, including re-exports, accounted for 15 percent.

While "principal" exports may, indeed, be "traditional" exports from Guatemala, in the sense that the country has been involved in the export of these items for a considerable time, the breakdown adopted by the Banco de Guatemala needed some reassessment if it was to be of value for a transportation study

For the purposes of the study, it was intended that the classification "traditional exports" signify rather more than just those items that had traditionally been exported. The classification was intended to separate those exports that had reached a level of sophistication and volume which enabled them to be managed with economic efficiency from those exports which were small in volume and were uncoordinated. The rationale behind the definition was that exports defined as being traditional in this sense could be expected to be making use of transportation in as efficient a manner as possible, as a result of their great volumes and international management expertise. On the other hand, exporters of what are defined as non-traditional products might be expected to be experiencing correctable difficulties in their use of transportation facilities.

Table 3.1 shows the exports in each category listed in order of value. Coffee is by far the largest export, accounting for 32 percent of all exports. The next most important, meat, accounted for only 7 percent, with meat, cardamon, bananas, sugar and petroleum together accounting for 33 percent. The largest of the "other products"--chemicals--accounted for about 2 percent.

Table 3.2

Guatemala

Principal Exports History

(millions of Quetzales)

	Value				
Product	1981	1982	1983	1984	1985
Cotton	127.6	78.5	46.1	70.4	59.5
Sugar	85.2	23.2	95.3	74.6	33.2
Bananas	49.9	60.2	38.5	56.6	42.8
Coffee	294.8	358.8	308.8	360.7	323.5
Cardamon	34.3	29.7	31.4	59.4	50.6
Meat	29.3	15.3	14.9	11.6	73.8
Petroleum	22.1	46.1	60.0	34.0	8.5
Total Principal	643.3	611.9	668.4	667.4	657.1
Total Others	582.8	507.9	490.4	454.9	363.5
Total Exports	1,226.1	1,119.8	1,158.8	1,122.3	1,020.6

Source: Customs of Guatemala

Exchange Rate: Q/1 = US$ 1

Table 3.2 shows the role that the "principal" exports have played during the period 1981 to 1985. In every year this group has contributed of the order of two-thirds of the nation's exports, though the contribution of any one item varied according to circumstances.

Coffee has maintained its dominant position throughout, showing a slight increasing trend over the period. At the end of the 1970s cotton was the second most important export. By 1985 cotton had fallen to third place, but its value to the nation had fallen 50 percent from 128 million Quetzales to 60 million Quetzales. Sugar's contribution also fell considerably during the period, though the fall was far more erratic. Petroleum exports fell to a mere fraction of the peak reached in 1982.

The products in the "traditional" group that showed growth trends included cardamom and meat. Bananas fluctuated little about a mean of 45 million Quetzales per year.

Of significance from the table is the behavior of the group of exports outside the "traditional" category. As can be seen, "other" exports have shown a general declining trend over the period, accompanied by major fluctuations. It is clear that, by comparison with the top 7 exports, the remaining exports are those that are the least consistent and predictable, and most in need of assistance.

Of significance to a transportation study is the volume of the product that has to be transported. Table 3.3 gives the tonnages of Guatemala's main exports.

Table 3.3
Guatemala
Export Tonnages
1985

Bananas	364,987
Sugar & related products	283,277
Coffee	174,805
Vegetables & products	104,995
Cotton	51,737
Oilseeds & products	36,960
Fruits & products	32,999
Cut flowers & plants	15,773
Lumber & mill products	13,735
Meats	10,083

Source: Banco de Guatemala

While bananas and sugar account for only about 8 percent of the nation's income from exports, these two products alone account for nearly two thirds of the nation's export volume. Coffee, while it accounts for one third of exports by value, requires only 15 percent of the export cargo hold space. Cardamom, on the other hand, contributes less than 10,000 tons, but is the fourth most important export.

Thus, given their value and volumes, it can be concluded that coffee, sugar, bananas, and cotton are the "traditional" exports of Guatemala. Their high volumes and comparatively low unit values make it essential that they be handled in bulk, in specialized transportation equipment, or with specialized handling processes. While not strictly a high-volume traditional product in the same sense as the others, meat is classified as traditional for this study because of its marketing requirements: recent

quota cuts by main buyer of Guatemalan meat, the USA, converts this product into one whose main export impediment is not in the hands of the producer or the carrier. Petroleum products, likewise, are internationally controlled, and use purpose-built transportation.

For this study, cardamom was included among the non-traditional exports. It was considered that the export problems of cardamom producers were more related to the problems of the non-traditional exporter than the traditional. Thus, recommendations directed at increasing non-traditional exports may also serve to increase exports of cardamom.

The traditional exports of Guatemala are thus coffee, cotton, meat, petroleum, sugar, and bananas.

OVERVIEW OF NON-TRADITIONAL PRODUCTS

In this study, then, non-traditional products are all the exports that remain once the six traditional exports have been removed. Clearly, these run into several hundred different traded items, and so aggregation was necessary to facilitate the interviewing and subsequent analysis.

Treatment on an aggregated basis, as in Table 3.4, was also necessary because individual export items did not appear in the national statistics every year. Factors combined differently each year to make the export of a product either profitable or not; exporters would be active in years of economic returns, and inactive in years where their product was not competitive overseas. For most exporters of non-traditional products, there was little attempt at planning and putting into effect a program for increasing exports, it being considered that the future was far too uncertain for them to make such a commitment.

Table 3.4
Guatemala
Export Profile by SITC Category
1984
(thousands of Quetzales)

SITC Code	Category	Value		
		Total	Traditional	Non-traditional
0	Food & Live Animals	603.3	503.5	99.8
1	Beverages & Tobacco	18.3	0	18.3
2	Crude Materials, Inedible	171.1	70.4	100.7
3	Mineral Fuels, Lubricants	34.3	34.3	0
4	Animal & Vegetable Oils	1.5	0	1.5
5	Chemical Products	109.0	0	109.0
6	Manufactured Goods, Basic	102.5	0	102.5
7	Machinery, Transport Equipment	12.0	0	12.0
8	Misc. Manufactured Goods	38.1	0	38.1
9	Others	32.2	0	32.2
	Total	1,122.3	608.2	514.1
	Percentage	100	54	46

Source: Customs of Guatemala

Exchange: Q/1 = US$ 1

Table 3.4 shows the export profiles for Guatemala in the mid 1980s. The non-traditional profile differs from the total export profile by the removal of the figures for bananas, coffee, sugar, cotton, meat, and petroleum.

Of significance from the table are the following:

1. Non-traditional exports constitute about 46 percent of total national exports.

2. The value of non-traditional agriculture-related exports is approximately $200 million per year.

3. The value of all classes of manufactured goods exported is approximately $294 million per year.

4. The manufacturing sector in Guatemala generates 33 percent more than the value of exports of the agricultural sector, with a significantly lower demand on transportation.

The relationship between agricultural and industrial exports was considered basic to an understanding of Guatemala's exports. While the total export profile confirms that Guatemala is heavily dependent on basic agricultural products, the profile of non-traditional exports shows that the agricultural sector and the industrial sector are almost equal in importance.

For transportation-related programs aimed at improving the export situation of the country, the relative position of the industrial sector has to be given serious consideration: industrial products generate more income per ton exported than basic agricultural products, to the extent that industrial sector demands on transportation are far less. An impulse, then, to the industrial or manufacturing sector in the way of external assistance could be more productive than the same impulse to the agricultural sector.

Using the broad aggregation of the SITC classification, the export groups are now considered in turn. For the first category, Food and Live Animals--exporters of fruits and vegetables were targeted for interviews. This group had been identified by recent studies as having the greatest potential for growth, but this same group was reported to be experiencing some of the most serious difficulties.

The SITC classification following Food and Live Animals is that of Beverages and Tobacco. The export of beverages from Guatemala is mostly limited to exports to neighboring countries. All the countries within the region have well-developed breweries, and most produce their own extracts of sugar such as rum. Export figures show that about 13 million Quetzales of tobacco is exported from Guatemala. For the most part, it was determined that exports of tobacco shared most of the same problems with other agricultural categories.

The third category is that of "Crude Materials, Excluding Fuels." This category includes virtually any natural or growing product excluding food. It includes, for example, wood and fresh flowers. It also includes such items as animal skins and pelts, ground nuts, beans, latex, synthetic rubber, wood particles, veneer, lumber, cotton, fibers, phosphates, clays, iron ore, copper, and so on. The category makes up about 7 percent of total non-traditional exports. The dominant non-traditional exports from Guatemala in this category are oilseeds and fresh cut flowers, ornamantal plants and flower seeds. Lumber and animal feedstuffs were also targeted for interviews within this group.

The category of "Mineral Fuels and Lubricants" was eliminated because it comprised only exports of the traditional petroleum. Similarly, exports of "Animal and Vegetable Oils" were not a significant element in the non-traditional export profile.

The first of the classifications that normally comes under the heading of industrial is "Chemicals and Chemical Products." In Guatemala, these are made up of fertilizers and pesticides, and soaps and cleaning preparations. Basic Manufactures, the seventh category, includes paper and paperboard, and glass bottles. These were also taken to represent the small contribution of Machinery and Transport Equipment and Miscellaneous Manufactured Goods.

The results of the interviews are presented in the following sections, together with some preliminary comments on the findings.

NON-TRADITIONAL AGRICULTURAL EXPORTS

Fruits and Vegetables

Table 3.5
Guatemala
Fruit & Vegetable Exports
(thousands of Quetzales)

	1981	1982	1983	1984	1985
Fruit, fresh, processed	21,788	11,209	7,758	8,024	6,392
Vegetables	30,630	36,661	26,721	24,136	23,117
Total	52,418	47,870	34,479	32,160	29,509

Source: Banco de Guatemala

General Observations More than 15 firms producing a range of products including melons, broccoli, snow peas, stawberries, blueberries and okra were interviewed. Products were either in fresh, processed or frozen form. Fresh products such as berries, okra and broccoli had to be routed by air. As a group, this category accounts for almost 25 percent of total non-traditional export volume from the nation of almost 400,000 metric tons.

Immediately after harvesting, products have to be refrigerated to remove field heat. Then the fresh and frozen products require refrigerated containers for shipment, first by road from producing areas to the airport or the port.

This is clearly an industry where transport costs tend to be a significant element of CIF values. To cite one example, honydew melons have a CIF value in Miami of about US$ 165 per ton. The transport cost per ton exceeds US$ 121.

Survey Findings While each firm had an individual approach to a discussion of transport impediments, several themes or points of view were repeatedly expressed.

The most common complaint was that Guatemalan exporters were at a disadvantage with respect to producers elsewhere in the region because tariffs between Santo Tomas and Miami were higher than rates for the other countries in the region.

Other major complaints included:

- agricultural products arrived in Miami on Friday and Saturday, whereas Monday and Tuesday were considered the best marketing days.

- producers of perishables--strawberries, blueberries, okra--said air service to Miami was so unreliable that production was being cut back. (On the other hand exporters to Los Angeles said TACA air cargo service was reliable and cheap--$0.33 a kilo.)

- refrigerated containers were in short supply.

- Santo Tomas charges were high and shippers had to pay for services not always provided.

- the airport lacked refrigerated holding areas.

- the smaller producers have more severe transport problems than larger enterprises.

- some producers--by no means all--said cost of moving products to the ports was excessive.

- the excessive amount of documentation required for exporting.

Lack of Direct Service to Miami. The lack of direct service to Miami as well as the timing of product arrivals in that port was a problem and a major shipping line announced in early December that it would begin direct weekly service to Miami as of December 15, 1986. In February 1987 the shipping line advised that volumes to Miami were disappointing and below expectations.

Restrictions on Air Freight Availability. The problem of air transport is complex. Perishable fruit and vegetable supplies peak in December. This coincides with the high season for passenger travel. Accordingly, it is not always easy to have available cargo space for relatively modest volumes during the busiest time of year for the air lines. The irregularity of this

demand for air transport from one year to the next complicates the problem of providing assured service. Exporters tend to reduce output when spoilage results from failure to get products to market at peak quality.

High Port Charges. Port charges at Santo Tomas are seemingly high for several reasons. The port is obliged to transfer a portion of revenue to the Treasury. This cuts down on the port's availability to finance major improvements. To reduce the effects of stevedoring inefficiencies, exporters try to contract on a total tonnage rather than on an hourly basis. However, this option is limited to those moving substantial cargo volumes. Charges are levied for the use of cranes at the port although they are in frequent, if not constant, disrepair. Despite these problems the charges at Santo Tomas are lower than at most other ports in the region. The inefficiencies at the port mean that port charges are higher than they would otherwise be. It also means that loading and unloading delays require shipping lines to raise their charges for sea freight.

Lack of Refrigerated Facilities. The export of fresh fruits and vegetables, fresh fish, shrimps and lobsters, and flowers all require that facilities for refrigeration be made available. In the first place, refrigeration is required at or near harvest areas to remove field heat, and to store until transportation is in place. For transportation to market, the product requires containers that can maintain the low temperature. The container requires electrical outlets to be available at any location where waiting will take place.

With the highly perishable products that go by air, it is essential that refrigerated storage facilities be available near the airport. These facilities are extremely sophisticated, involving the maintenance of temperatures at different levels, and require the removal of contaminating gases that get released by the products.

There was no basic infrastructure for refrigeration available in Guatemala, and it was considered that this was becoming--both directly and indirectly--an impediment to increased exports.

The supply of refrigerated containers available for transport is seriously reduced as a result of the lack of refrigerated storage space available to fruit and vegetable producers. Many producers request, and receive, refrigerated containers which they then proceed to use for storage rather than transport purposes. This creates an artificial scarcity of refrigerated containers available for transport. Also aggravating the container supply situation is the fact that some 25 percent of the output of fruit and vegetable producers takes place in the single month of January.

Problems of Small Producers. Clearly, smaller producers have more transport problems compared to larger enterprises. It is likely that if smaller firms engage in promotional, marketing and transport activities on a cooperative basis, important transport gains can be achieved.

Roads. The roads to Guatemalan ports are bad. This is indisputable. But the evidence for the region suggests that Guatemalan fruit and vegetable exporters are by no means the only nationals suffering from this problem. The poor condition of the roads means--simply--that transport costs are higher than they would be if the roads were in satisfactory shape. Travel time would be shortened, breakdowns would be reduced, maintenance needs would be smaller and vehicle operating costs would be lower. Road improvements hold out the real promise of leading to lower transport costs, particularly in the case of the highway from Guatemala City to the port at Santo Tomás.

Export Documentation. There was a general complaint from all exporters that the amount of documentation required for exporting was excessive. Coupled with this complaint was the added burden of the recently-introduced SGS inspection requirement. This inspection organization, the Swiss-based Societé General de Surveillance, had been appointed by the government to lead a task force with the role of reducing irregularities in export documentation. It was estimated that the savings resulting from more accourate export accounting would more then pay for the cost of the hire. The move also created of the order of 750 jobs as SGS recruited its inspectors.

In comparison with the other countries of Central America, Guatemalan exporters were found to have to face an inordinate amount of red tape for an export to be approved. Exporters who had been in business some time estimated that potential exporters were being discouraged from starting, since dealing with export paperwork became a major occupation in any export office.

The addition of the SGS inspectors added further steps to the process, at a time when other countries in the region were close to establishing the "ventanilla unica," or the single step for export documentation.

While exporters generally felt that the shortage of foreign exchange in the early 80s may have forced some exporters to falsify customs documents, the easing of the situation and the closing of the parallel exchange rates virtually eliminated the need for such practices.

It was concluded that the exporter from Guatemala was certainly at a disadvantage when compared with his neighbors, and that without some reduction in the number of steps required to complete export documentation it would never be possible for exporters to give quick responses to rush orders placed by clients.

Communications. A difficulty encountered by most exporters was the difficulty experienced in coordinating activities using the existing telephone system. While steps were being taken by Guatel to provide extra phone lines, the bulk of the existing lines were in and around the city. Non-traditional product exporters required connections with their farms in the provinces, and were resorting to the use of radio communications. As a solution, this was expensive, particularly when it required that an exporter keep an office in the city merely to serve as the communication link between his radio and the telephone network.

Oil Seeds, Nuts and Kernels

General Observations There are about six principal firms in this field. One of the major enterprises was interviewed. The export items are sesame seed, cotton seeds, and peanuts. The industry accounts for some 5% of total non-traditional exports and is of average transport intensity. Exports have risen by 80% between 1981 and 1985.

Survey Findings Two thirds of the exports move by land to the other nations of the region, particularly El Salvador, Costa Rica and Honduras. These flows move smoothly and efficiently and there were no complaints about the service or the tariffs charged by contract truckers.

The other third of the exports go to the Miami area via Santo Tomás. Producers say high maritime rates limit their ability to penetrate the Miami hinterland.

They did not believe the road transport to the port posed any problems and they were not critical of operations at the port.

Evaluation The exporters' complaint was a generalized one about their perceived competitive disadvantage in reaching Miami. They had no idea why they were in such a cost predicament. Their only explanation was that Guatemala does not subsidize exporters, whereas both Honduras and, particularly, Costa Rica do use national shipping lines and other subsidies to assist their exporters. Charges of this nature surfaced frequently in interviews throughout the region, but were generally without foundation. Neither Honduras nor Costa Rica has a national shipping line and the exporters in those nations certainly do not believe they are enjoying a subsidy of any sort.

The concerns and complaints noted by this industry indicated a general deficiency in management. They were not aware of the range of options open to them--such as joining together to negotiate more favorable transportation rates or trucking to ports in Honduras or Costa Rica--to make the best possible transport decisions.

Any improvement to the regional road network, to port operations or to management capabilities will improve the competitive position of these exporters.

Cut Flowers and Ornamental Plants

Table 3.6
Guatemala
Flowers, Plants, Seeds Exports
(thousands of Quetzales)

1981	1982	1983	1984	1985
10,545	9,678	8,381	10,787	9,022

Source: Banco de Guatemala

General Observations This industry accounts for less than 3% of non-traditional exports. The major firm in this field was surveyed. Because of relatively high values of product the industry is considered to be average in terms of transport sensitivity. Refrigerated containers are necessary to ensure the required quality of ornamental plants upon arrival in consumer markets. No ornamental plants in soil can enter the US, so these products are routed primarily to European markets. Cut flowers require air transport and can enter the US. Export value levels have remained fairly consistent in the period 1981 to 1985.

Survey Findings The industry ships to the United States by air and by sea. Air shipments go via Traslados, Aviateca, Pan Am, TACA and Eastern Airlines. The major shipping lines provide maritime service to Miami. Shipments to Europe are usually routed by sea. Shipping rates to the United States are considered excessive. Industry officials cite the fact that water transport to Miami is some two thirds of the rate for shipments to Europe despite the substantially greater distance to Europe.

Industry officials argue that air freight rates to Miami from Guatemala City are 51 cents (US) a kilo, while the comparable figure in Costa Rica is 41 cents and in Honduras 31 cents. When shipping to Los Angeles the firm finds that Mexican Airlines tariffs are so low that a routing Guatemala-Costa Rica-Los Angeles is advantageous. The lack of refrigerated storage facilities at the airport were cited as a problem. It made the timing of the arrival of cut flowers and plants at the airport a critical consideration. Refrigerated holding areas would, it is claimed, make it possible to have more flexibility in bringing products to the airport.

The industry is certain that any cost reduction in transport costs will lead to an increased flow of exports. That is, if the desired level of air transport service is available on a timely basis.

Evaluation The industry clearly has capable management and is well versed in all phases of transport sector operations. As noted earlier the view that costs of maritime transport from Guatemala are higher than in many other countries in the region is demonstrable.

However, it is not appropriate to conclude that Guatemalan exporters are being victimized. There are three working ports, but distances from the capital to the ports are relatively long. The frequency of shipping service may be less than in some neighboring countries but there are no restrictions limiting the number of lines which may offer shipping servics.

Overall, the industry operates efficiently within the existing transport structure. They are aware of all options and quick to select the most advantageous. Perhaps their most precisely focused transport problem turns on the lack of refrigerated storage facilities at the airport.

Lumber, Shaped Conifers

General Observations There are some half dozen medium-sized firms in this field, which accounts for less than 3% of total nontraditional exports. One of the larger firms in the group was surveyed. The industry is of average transport intensivity. Over the period since 1981 export volumes have shown a decreasing trend, particularly from a peak in 1982.

Survey Findings This industry exports to Central America and to the Tampa area in Florida. The survey indicated that road shipments to El Salvador and Belize are without major problems, although the road to Belize is far from satisfactory. Flagship provides regular service to Port Manatee at $900/container. Producers have no complaint about the frequency or cost of this service. It is claimed that the standard container height of 8 feet poses a problem. Industry officials would like the less conventional 9 foot--or, at a minimum, 100 inches--container to be more widely available. At present container stuffing is a difficult and time consuming process.

The limitation on more exports from this sector turns on the nation's unwillingness to adopt a sound policy of commercial exploitation of timber resources in concert with a reforestation program. Until such a policy ensures future raw material availability, the industry will be hesitant to increase capacity.

Evaluation The shipping line has agreed to increase the supply of the nine foot container unit.

Again, despite disclaimers about transport problems the industry will benefit from improvements to the road to Santo Tomas and to efficiencies at the port.

The inhibiting impact of the lack of a national policy on timber harvesting and reforestation is indisputable. For this reason the immediate prospect for a significant growth in non-traditional furniture manufacture and export is deemed slight.

Animal Feeding Stuffs

General Observations One major exporter was interviewed. This industry accounts for some 3% of total non-traditional exports. It is a transport intensive activity; in other words, it finds it difficult and costly to penetrate distant markets which involve relatively high transport costs.

Survey Findings Exports normally go to the nations of the region, principally Belize, Costa Rica and El Salvador. The firm uses contract truckers for these movements and could suggest no transport problem which was an export impediment.

Evaluation Clearly, transport improvements that make road transport more efficient will assist this exporter. The road to Belize, for example, is in deplorable condition. Exporters who do not complain about obvious transport deficiencies, in all probability, have made peace with existing conditions and have learned to cope with and adjust to deficiencies in the transport sector.

NON-TRADITIONAL INDUSTRIAL EXPORTS

Fertilizers and Pesticides

General Observations Some 5 firms were identified as the major participants in this field. This group accounts for more than 15% of total non-traditional exports. Fertilizers and pesticides are industries where transport cost levels are crucial to the industry's competitive position. Therefore, these products tend to be produced for local markets or for exports to neighboring countries. Long distance routings are usually not feasible. Exports since 1981 have risen by about 50%.

Survey Findings The field surveys indicated that virtually all exports are by road to the nations of Central America. The road conditions, the tariffs, the reliability and timeliness of delivery were all considered satisfactory. Producers tended to use their own trucks for shipments within Guatemala and to rely on contract truckers for exports.

Evaluation It was virtually impossible to extract a complaint from this group of exporters. Nevertheless, the need for road rehabilitation and accelerated maintenance in the country is well known. Transport improvements that improve managerial and driver skills in the trucking industry will also benefit fertilizer and pesticide exporters.

Soaps, Cleaning Preparations

General Observations The dominant firm in this field was interviewed. The industry contributes less than 4% of total non-traditional exports. This is a lower than average industry as far as transport sensitivity is concerned.

Survey Findings Guatemalan products are exported to El Salvador, Honduras, Costa Rica and Panama. The first three countries are served by road transport and there are no problems, according to the exporter. Contract truckers offer timely, reliable, secure and reasonably priced service. Panama is served by air and Iberia offers outstanding service. This firm could not be induced to identify any aspect of the overall transport system that it would like to see improved.

Evaluation Despite the unwillingness of the firms to identify transport problems, they will benefit from any actions, policies or facility improvements that make road or air transport more efficient.

Paper and Paperboard

Table 3.7
Guatemala
Paper Bags, Cardboard Boxes Exports
(thousands of Quetzales)

1981	1982	1983	1984	1985
2,887	2,491	1,370	1,232	1,425

Source: Banco de Guatemala

General Observations Interviews were conducted with the six firms that constitute the entire paper and paperboard industry in Guatemala. This industry supplies some 3% of total non-traditional exports. Because of its high value to weight relationship it tends to be relatively insensitive to transport costs. Export volumes have shown no appreciable growth since 1981.

Survey Findings The industry markets primarily to other Central American nations with Belize, El Salvador and Honduras as major destinations. Road transport is considered adequate to these neighboring countries. When pressed, industry officials said the roads from Guatemala City to Belize were somewhat less than satisfactory. They said rail transit to Belize would be ideal.

The industry imports rolled paper from the US, Canada and Europe and exports paper bags, cartons, toilet tissue etc. They work--on the import and export side--with limited volumes, and their negotiating leverage is small since imports come by water and exports go by truck. Several firms have joined together to improve marketing and transport activities. However, even in concert, shipping volumes tend to be modest: 1985 import total was 111,000 tons.

Industry representatives seem quite knowledgeable. They realize that their limited exports to Panama by ship cannot command bargain tariff levels. With limited volumes, stevedoring at Santo Tomas must be contracted on an hourly rather than on a total tonnage basis. And--they say--the stevedores work at a leisurely pace. The January 1987 tariff increase at Santo Tomás is considered a major blow to their operations.

Evaluation This group had capable management and was aware of the transport limitations associated with the scale and directional flow of their product and raw material shipments.

Transport gains for these producers need not await a substantial increase in their operations or a change in their pattern of product flows. Improvements to the road and trucking sectors will assist them. Further, any increase in efficiency at Santo Tomás will be beneficial. The possibility of a rail link to Belize is remote.

Glass Bottles

General Observations This industry consists of one firm. Its dominant position reflects its control of the essential raw materials for glass manufacture. This industry accounts for about 8% of Guatemala's non-traditional exports. Glass is an average

industry in terms of transport intensivity. Its exports are not restricted to nearby nations, even though transport costs can be high. Exports have advanced some 30% over the period 1981 through 1985.

Survey Findings This firm could serve as a model as to how to get transport productivity. It has professional transport management. Its markets are in Central America, the Caribbean and the hinterland areas of Miami and of New Orleans.

Land transport of exports to other nations in Central America is problem-free. The Carolina conference offers acceptable service and tariffs to the Caribbean, and their shipping volume enabled them to reduce the sea freight charge for a 40 foot container to Miami down to $1,080 from $1,600. The crane situation at Santo Tomas was an annoyance and served to raise transport costs. But ships' gear got cargoes loaded and unloaded at a satisfactory rate, according to industry managers.

The only transport improvement they suggested was shifting the stevedoring function at Santo Tomas to private hands.

Evaluation The field interviews elicited the response that the firm had very few transport problems, and it was confident in its ability to resolve any tranportation problem--or at least, to minimize its effect.

It was noted, however, that as the glass bottle supplier for Central America the firm was virtually in a monopoly position, so the question of competition was not a serious consideration. In many of the other countries of the region the complaint was heard that consideration could not be given to the processing of fruits and vegetables because of the high cost of the container. Those producers who did bottle their product could only sell on the local market. Investigation revealed that the cost of glass

containers, and the tops that go with them, was considerably more than in the USA. To some extent, then, the cost of glass containers in the region is a function of the cost of moving these from factory to user, and a function of the cost of moving the raw materials around the region. Thus any reduction in the costs associated with land transport in both Guatemala and the region would serve to make the cost of glass containers more in line with costs elsewhere.

The question of "privatizing" stevedoring at Santo Tomas is as much a political as a transport issue. Clearly, such a change would have the potential of greater efficiency.

Table 3.8
Guatemala
Exports by Region
1984
(thousands of Quetzales)

SITC Code	Category	Total	Value Region	World
0	Food etc.	603,295	60,079	543,216
1	Bev. & Tobacco	18,316	2,126	16,189
2	Crude Mats.	171,111	6,178	164,932
3	Mineral Fuels	34,347	335	34,012
4	Animal, Veg. Oils	1,454	715	738
5	Chem. Prods.	109,044	83,310	25,734
6	Basic Manuf.	102,476	90,814	11,661
7	Mach., Equip.	11,969	10,923	1,047
8	Misc. Manuf.	38,070	33,688	4,382
9	Others	32,205	3,264	28,941
	Total	1,122,286	291,433	830,853
	Percentage	100	26	74

Source: Customs of Guatemala

Exchange: Q/1 = US$ 1

GUATEMALA

CHAPTER 4

NATIONAL TRANSPORTATION

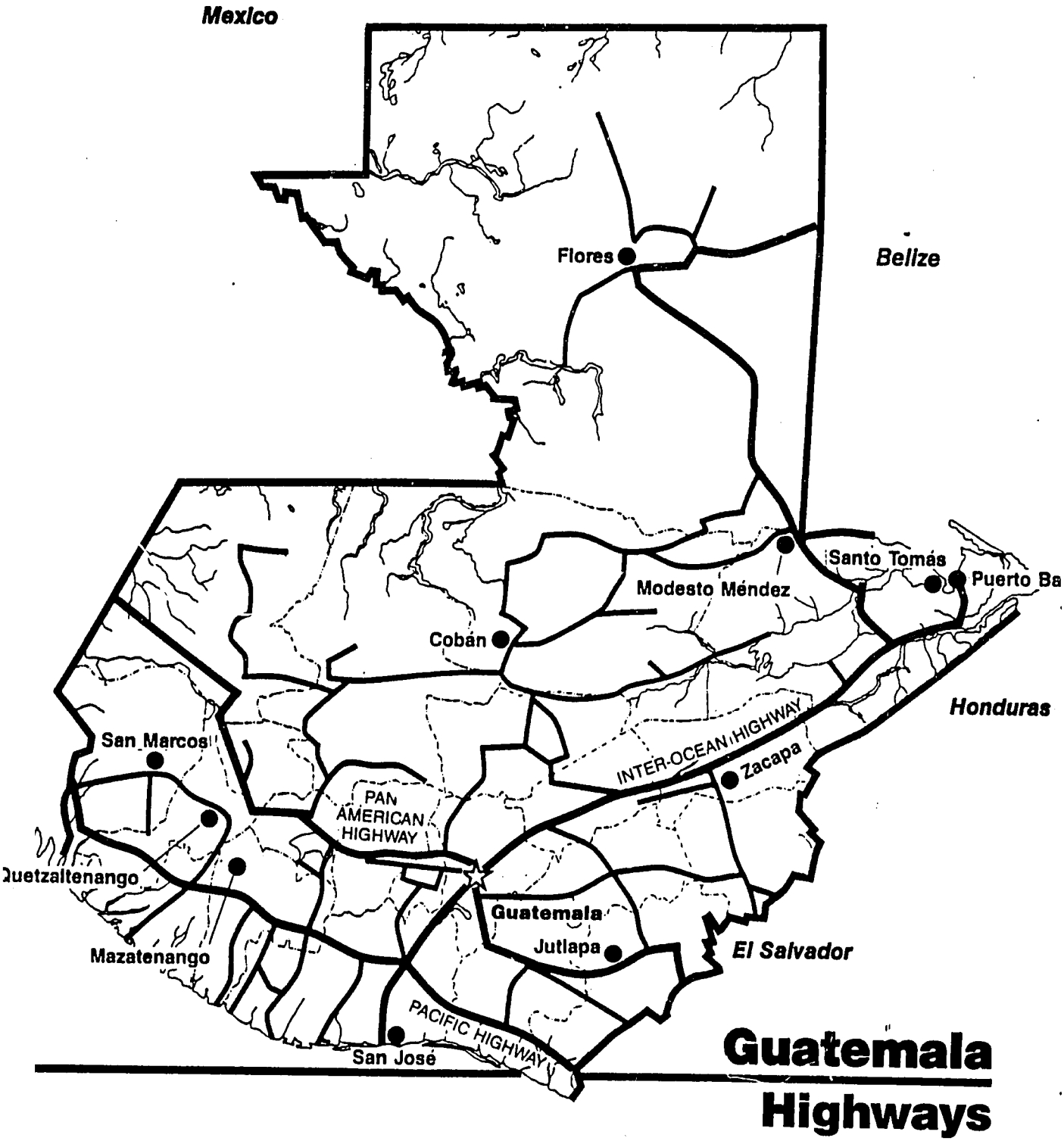
The transport infrastructure of the nation includes road, port, air transport, and railroad facilities. Roads to the Atlantic Coast have eliminated nearly all remnants of river navigation.

HIGHWAYS & ROAD TRANSPORTATION

Roads

There are some 11,390 kilometers of roads in the nation, and about 3,100 kilometers are paved.

The Pan American, the Inter-Ocean, and Pacific Highways are the backbone of the system. The Pan American Highway segment consists of some 1,500 km and extends from the Mexican border to the frontier with El Salvador, passing through the Central Highlands and Guatemala City. The Inter-Ocean segment (392 km) passes through Guatemala City and connects the Atlantic ports with San José on the Pacific. The Pacific Highway (270 km) crosses the Pacific coastal plains and links Chiquimulilla, Esquintla, Mazatenango and Coatepeque. Badly deteriorated roads link El Petén with the rest of the nation and with Belize.


Mexico
Flores
Belize
Santo Tomás
Puerto Ba
Modesto Méndez
Cobán
Honduras
INTER-OCEAN HIGHWAY
Zacapa
San Marcos
PAN AMERICAN HIGHWAY
Quetzaltenango
Guatemala
Jutlapa
El Salvador
Mazatenango
PACIFIC HIGHWAY
San José
Guatemala
Highways

Road Conditions Guatemalan highway authorities estimate that less than 2% of the paved roads are in good condition. More than 60% are described as being in bad condition while the balance is characterized as average. More than two thirds of the unpaved roads are described as being in bad condition.

The major national road artery, clearly, is the section of the Inter-Ocean Highway linking Guatemala City with the port at Santo Tomás. There are no major problems arising from the original design standards: grades, sight lines and road width do not pose difficulties. Neglected maintenance, however, is a major impediment. For the 100 kilometer segment before Santo Tomás, only one half of the road width is usable. Traffic in both directions tries to avoid the rutted and deteriorated side. This means two way traffic is virtually eliminated. Passing slower vehicles is also difficult and dangerous.

The road to San José, particularly the section between Escuintla and the Pacific, also has a level of foregone maintenance that severely restricts travel speeds.

Some of the roads in the immediate area of the capital are new and are, therefore, in good condition. The roads more distant from the major metropolitan area are less satisfactory and show the effects of foregone maintenance.

National Road Program In 1986 road maintenance budget was estimated to total about Q 3.5 million. More than 870 km of road were involved in these maintenance activities. A separate rural road program resulted in the construction of 400 km of roads and an estimated maintenance budget of more than Q 2 million in 1986. Most of these roads were in the southwestern section of the nation, the major agricultural production area.

Responsibility for the condition of the nation's roads is under the jurisdiction of the Direccion General de Caminos (DGC), under the Ministerio de Comunicaciones, Transporte y Obras Publicas.

This entity has begun an ambitious nationwide road rehabilitation program that is expected to cost nearly $375 million by its completion in 1991. Portions of this program are already funded by the Inter-American Development Bank, and will begin in 1987; these include the purchase of $3 million in roadbuilding equipment and the rehabilitation of five trunk highways and other roads. Other portions await financing from the World Bank or other sources. The program includes:

- a $72-million World Bank loan to buy roadbuilding equipment and fund a $47-million program to rehabilitate 360 km of paved roads, 800 km of dirt roads, and rebuild about 1500 bridges on the unpaved routes.

- a consultant for an estimated $3-million contract to carry out detailed design of various highways planned for the last three years of the program. A World Bank mission was due in May, 1987, for a preliminary look at the program, and a full evaluation team is due in September of the same year.

- a $36.9-million loan to rehabilitate a 212.3-km stretch of CA-1 West, from Los Ecuentros to Cuatro Caminos, then on to La Mesilla, in Huehuetenango Province. DGC had completed studies for the first section, and was to undertake studies for the second.

- grading of a 34.9-km road between Bocrofoya and Mahalate. World Bank funds were being sought for this $6.6-million project.

- a $12-million rehabilitation of 135 km of five trunk highways and purchase of $3 million in roadbuilding equipment. The contracts were to be financed by the Inter-American Development Bank (IADB). Construction was to start by November, 1987, for completion in 30 months.

- widening of a 40.6-km stretch of CA-8, from Moyuta to Ca-2 East. Studies were done in-house by DGC. Construction was to be backed by a $15.3-million IADB loan, and was to start in November, 1987.

- rehabilitation of a 43.4-km road between Rio Hondo and Dona Maria, for which DGC did studies. Construction of the $7.4-million rehabilitation, also financed by IADB, was to start in November, 1987.

- a $6.2-million rehab of a 14-km road from San Juan Ostuncalco to Quetzaltenango. Construction was to be partially funded by IADB, and was to start in November, 1987.

- reconstruction of the 20-km Barberena-El Molino road, funded by a $6.5-million load from the Central American Bank for Economic Integration (CABEI). Studies and design were by DGC.

- rehabilitation of a 50.5-km road between El Rancho and Rio Hondo funded by an $8.7-million CABEI loan.

- o rehabilitation of a 101-km highway from Rio Hondo, east to the Honduran border. Financing for the $17.3-million project was to be lined up after design is completed.

IADB was also to finance a separate program to build or improve 265 km of rural roads. Most of this work was to be done by hand, using local labor, with consultants and equipment provided by DGC. DGC was also seeking to rehabilitate 55 km of roads between DA-2, at Taxisco, and Pedro Alvarado, on the El Salvador border.

Five other reconstruction projects were also to be studied by DGC: a 95.8-km road from El Molino to San Cristobal; a 75.8-km road between Chimaltenango and Los Encuentros; a 118.5-km stretch between Retalhuleu, and Tecunuman and Ciudad El Carmen, both on the western border with Mexico; a 21.7-km road between Yado Hondo and El Florido, which was also to be widened, and was estimated to cost about $34.9 million.

DGC expected to tender construction of the last two-thirds of a 15.4-km highway widening between CA-1 East and CA-9 Norte once it completed detailed design. Financing was to be from local sources. The first third of the project is being built by local firm.

DGC had received a $13-million loan from West Germany's Ministry of Economic Cooperation to finance construction of a 160-km highway from Modesto Méndez to Flores, linking with a road to Tikal National Park. Plans called for improving and widening the existing unpaved road, with new bridges, drainage structures, and paving. Design studies were to be completed by June, 1987, and construction tenders, probably limited to W. German or local firms, were to be invited by October. DGC was considering bidding the estimated $29-million project in two stages: Puerto Modesto Méndez-Poptun, and Poptun-Flores. DGC was also studying an alternative route, which would connect Poptún and Sayaxché.

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The above list does not include a number of major projects which were already in progress at the time of the study. These included rehabilitation of some of the worst parts of the road from Guatemala City to Santo Tomás, and rehabilitation of the road from Guatemala City to Puerto Quetzal.

Trucking

The 1986 motor vehicle fleet in Guatemala was estimated at 190,000 vehicles. The table below (Table 4.1) shows the vehicle types which make up this total.

Table 4.1
Guatemala
Composition of Motor Vehicle Fleet, 1986

Taxis	2,964
Automobiles	78,052
Jeeps/small trucks	13,297
Pick-ups	53,484
Panel trucks	2,889
Panel autos	8,661
Trucks	16,763
Microbuses	7,229
Buses	5,704
Other Cargo	1,992
Not identified	213
	191,248

Source: UN Advisor to the Ministry of Energy and Mines

The trucking industry is composed of two distinct classes of firms. The larger, better financed enterprises dominate the hauls to the ports and the intra-regional flows. Their contracts with shipping lines and with exporters and importers permit them to keep their fleets in good operating condition. The other segment

of the industry is in constant turnover. It consists of small operators who try to survive on a price rather than a regular, quality of service basis. One major accident or the impact of neglected vehicle maintenance can put then out of business. Rarely is it possible for a small operator to enter the ranks of the secure, established firms.

RAILROAD

The national railroad of Guatemala - FEGUA - was established officially in 1968, in a move to take over the private sector company International Railroad of Central America. The structure and function of FEGUA was established in 1968, creating a quasi-autonomous public body under a "junta directiva," or board of directors.

At the time of the takeover the system had been allowed to run down, and was virtually abandoned. As a result, the country's railroad has not since achieved any level of efficient operation. At the time of the study the economic foundation of FEGUA was in transporting bananas to Puerto Barrios, over about 58 kilometers of usable track. At a lower level, the banana income was supplemented by quantities of sugar, coffee, flour, and fuel. In areas where road transport was otherwise inadequate, FEGUA ran passenger services.

For a number of years FEGUA has not contributed significantly to the development of Guatemala, having closed important lines and replaced regular daily services with alternating services.

Guatemala Railroads

Table 4.2
Guatemala
Railroad Freight & Cargo
1985

	Volume Tons	Income Quetzales
General Exports	63,048	908,088
Banana Exports	271,405	1,657,293
Imports	136,884	1,530,412
Local Freight	75,248	739,470
Mail	9,879	220,055
Total	556,464	5,055,318
	Tickets	
Passenger	585,635	252,625
Income from Freight & Passengers		5,307,943

Source: FEGUA, Memoria de Labores, 1985

In 1985 the service supplied by FEGUA was irregular and unpredictable. Average speeds were less than 40 km per hour, and there were areas of speed restrictions down to 8 km per hour. These were as a result of the poor general state of the trackwork, missing ties, obsolete fixing systems, and unstable ballast. Derailments were frequent.

As a result of the generally poor condition of the system, successive administrations of FEGUA have adopted a policy of reducing the level of service, with the dual intention of minimizing operating losses and maintaining those sections that could be salvaged.

The total length of trackwork under FEGUA is 948 kilometers, including yards, sidetracks, spurs, and main lines. Two major lines are completely out of service: that connecting Zacapa with the frontier of El Salvador, and the section connecting Las Cruces with Puerto de Champerico.

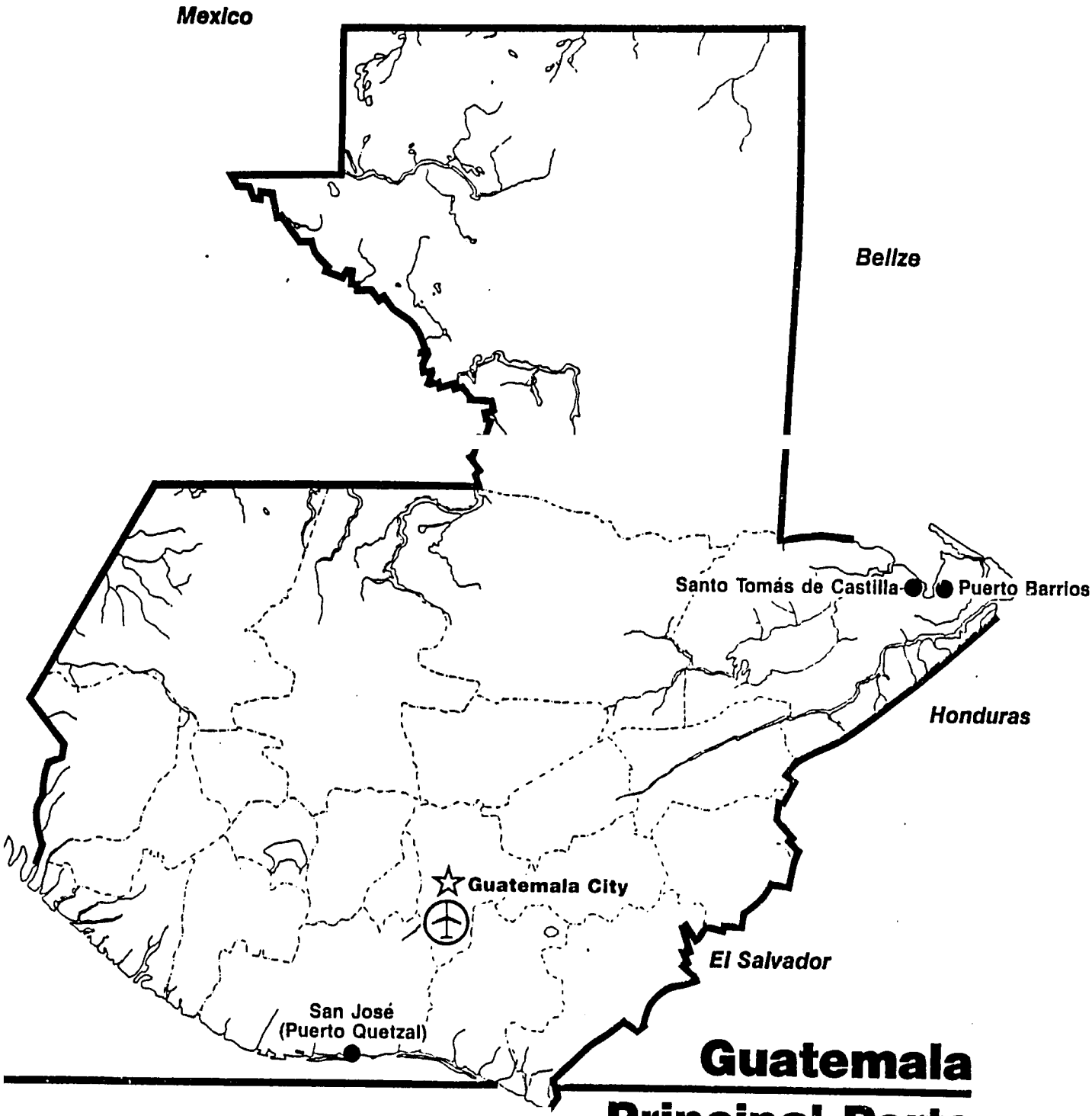
MARITIME TRANSPORTATION

Ports

Guatemala operates two major ports: Santo Tomás de Castilla on the Atlantic and Puerto Quetzal on the Pacific. Both these ports took over from smaller ports which had proved inadequate: Puerto Barrios on the Atlantic and Puerto San José on the Pacific.

Both ports are run by quasi-autonomous government bodies, under the direction of a "junta directiva," or board of directors. The Atlantic port is under the Empresa Portuaria Nacional Santo Tomás de Castilla, while the Pacific port authority is entitled Empresa Portuaria Quetzal. The directors are appointed from the Office of the President of the Republic, and while no single ministry has power over Santo Tomás, representatives of relavent ministries are included in the board of directors. The port is an autonomous body and not accountable to the Ministry of Transport.

Port activities are considered to be revenue-earning for the central government, and so funds are regularly transferred from port accounts to the Treasury.



Guatemala
Principal Ports & Airports

Major International Airport

Table 4.3
Guatemala
Selected Major Exports by Port of Exit, 1985
(metric tons)

	Santo Tomás	Puerto Barrios	Puerto Quetzal
Bananas	305,271	0	0
Sugar	3,003	32,909	220,548
Coffee	118,849	34	3,440
Cotton	10,947	0	59
Meat	8,224	0	0
Vegetables	12,420	0	0
Fruits	7,976	0	0
Oilseeds	12,444	0	1,345
Cardamom	6,802	0	55
Flowers & Plants	9,714	0	0

Source: Customs of Guatemala

Table 4.4
Guatemala
Selected Major Imports by Port of Entry, 1985
(metric tons)

	Santo Tomás	Puerto Barrios	Puerto Quetzal
Wheat	68,551	47,647	0
Dairy Products	14,656	0	236
Vegetable Oils	27,387	2,870	0
Tallow	24,601	0	0
Vegetables	2,116	0	71
Mfgd Fertilizers	151,388	2,197	19,521
Resins & Plastics	33,991	721	454
Other Chemical Products	63,873	44	5,953

Source: Customs of Guatemala

The relative importance of the ports of Guatemala is shown in Table 4.3 and Table 4.4. As can be seen, the majority of the nation's exports leave by way of Santo Tomás, with neighboring Puerto Barrios limited to small quantities of bagged sugar. Puerto Quetzal--a relatively new construction--has been slow to meet its potential, but is already the second most important port in the nation. Even so, exports through Puerto Quetzal are almost exclusively sugar, and are likely to remain so until cargo handling equipment is available.

A significant role had been played in the past by the Salvadoran port of Acajutla. Table 4.5 shows the Guatemalan imports and exports that have been handled at Acajutla since 1981.

Table 4.5
Guatemala
Cargo Moved via Acajutla
(tons)

	1981	1982	1983	1984	1985
Imports					
General Cargo	44,159	25,311	28,883	26,003	20,132
Solid Bulk	110,389	51,965	81,810	84,373	100,611
Liquid Bulk	0	0	0	0	0
Total Imports	154,548	77,276	110,694	110,376	120,743
Exports					
General Cargo	3,072	10,740	64,920	2,113	589
Solid Bulk	45,531	29,850	0	10,113	0
Liquid Bulk	0	0	0	0	0
Total Exports	48,603	40,590	64,920	12,226	589
Total Exports & Imports	203,151	117,866	175,614	122,602	121,332

Since Puerto Quetzal began operations, Guatemalan use of the El Salvador Pacific port of Acajutla has dropped sharply. Total Guatemalan general cargo and bulk exports via the port of Acajutla fell from 50,000 tons in 1981 to less than 600 tons in 1985. As Puerto Quetzal develops and becomes more established it may even lead to some cargo diversion from Santo Tomás.

Most of the imported cargo through Acajutla takes the form of bulk grain, soy flour, and fertilizer, in about equal proportions. As the main bulk handling port on this part of the Pacific coast, it is likely that Acajutla will continue to provide this service for some considerable time. Exports through Acajutla, on the other hand, show no consistency as to type of product, though figures are occasionally inflated by sugar exports. These bulk exports will doubtless be transferred to Puerto Quetzal, but until regular liner service is established at Quetzal, general cargo destined for the Pacific rim will need to continue using Acajutla.

Santo Tomás de Castilla. The port is in the form of a marginal wharf, with a total berth length of 1,000 meters, though this total is classified as being 915 meters of general cargo and container berths, and space for six Ro-Ro operations. The depth of water alongside is given as about 10 meters--a less than adequate depth for modern operations. There are two cranes in the port (one 30 ton and one 50 ton) and two straddle carriers (35 ton), though all of these were reported as being in a state of frequent disrepair and requiring ship's gear to load and unload cargo. The port also had 7 front handlers, 12 yard tractors, and 83 fork lift trucks.

There were 82 electrical connections in the port for reefer containers, though the sockets required adaptors for connection to typical reefers. There is storage space in the port for the equivalent of 5,636 containers of 20 ft, and covered storage of 6,970 square meters.

In 1985 the port of Santo Tomás handled 2.05 million tons of cago, both loaded and unloaded. Of this total, 1.18 million tons was in imports, and 0.87 million tons was in exports. Of the exports, 356,913 tons was accounted for by bananas. Exports to the United States accounted for 275,770 tons of the bananas, or 83%. The principal import and export products are given in Tables 4.6 and 4.7.

Table 4.6
Guatemala
Santo Tomás: Import Tonnages, 1985

Product	Tons
Fertilizers etc.	154,336
Diesel and fuels	130,450
Paper, paper products	111,685
Gasoline	84,008
Chemical Products	78,767
Wheat	74,588
Propane Gas	60,132
Plastic Fibers & Resins	45,374
Petroleum Distillates	43,084
Animal, vegetable oils, fats	41,778
Other foods	40,016
Basic Metal Products	37,212
Other Metal Products	36,615
Loaded Containers	35,176
Empty Containers	26,869
Loaded Ro-Ro Truck	24,647
Kersone	21,404
Textiles, clothing	20,069
Empty Ro-Ro truck	13,716
Earth, porcelain, glass	12,430
Machinery and Equipment	11,987
Insecticides	10,422
Other imports	62,003
Total Imports	1,176,773

Source: Empresa Portuaria Nacional Santo Tomás de Castilla

Table 4.7
Guatemala
Santo Tomás: Export Tonnages, 1985

Product	Tons
Bananas	356,913
Coffee	199,018
Crude Oil & Natural Gas	64,965
Loaded Containers	48,662
Fruits & Produce	34,901
Ro Ro truck, loaded	31,604
Sesame seeds	17,042
Meat	16,152
Empty Container	13,271
Forest Products	12,500
Clay, porcelain etc	9,789
Cotton	7,741
Sawn wood	7,163
Cardamom	6,607
Empty Ro-Ro truck	6,215
Textiles, clothing	4,945
Machinery & Equipment	4,875
Bee Honey	3,669
Other food products	3,246
Other exports	27,616
Total Exports	876,894

Source: Empresa Portuaria Nacional Santo Tomás de Castilla

Deducting liquid bulk from the import total results in a 1985 dry bulk and general cargo tonnage of 837,690 tons. For exports, dry bulk and general cargo came to 811,929 tons.

Of the imports in 1985, 216,000 tons was containerized, and of the exports 282,000 tons was containerized. Of the 1,649,619 dry bulk and general cargo loaded and unloaded, 498,000 tons was containerized. This represented 30% containerized.

Containerization Of critical importance to the future of Santo Tomás has been the increase in containerization over recent years. From 1983 to 1984 there was a 23% increase in tonnage, and from 1984 to 1985 the increase was of the order of 12%. At a present level of 40,000 containers handled, the capacity of one container berth and one appropriate crane would be seriously strained--even under the best of operating conditions. Given that the crane is not always available, and that other means are used for container loading, the conclusion is inevitable that the container capacity of the port is being seriouly exceeded. Given also the growth of containerization, the delays arising from slow container handling will only get worse over the coming years.

The number of full and empty containers moving through the port in 1985, by container size, are shown in Table 4.8:

Table 4.8
Guatemala
Santo Tomás: Container Movements, 1985

	Imports			Exports		
	20'	35'	40'	20'	35'	40'
Full	5,370	4,790	5,647	5,372	4,790	5,647
Empty	2,212	581	1,615	2,212	591	1,615
TOTAL	7,582	5,371	7,262	7,584	5,381	7,262

These data demonstrate that of the total of 40,442 containers handled in 1985, 8,826 were empty. This represented 22 percent empty, and was not considered unreasonable as an average. This percentage says nothing about the interchangeability of the containers--refrigerated containers are not interchangeable with dry containers--but given the fact that empty containers are unavoidable, a proportion of up to 25 percent is considered acceptable.

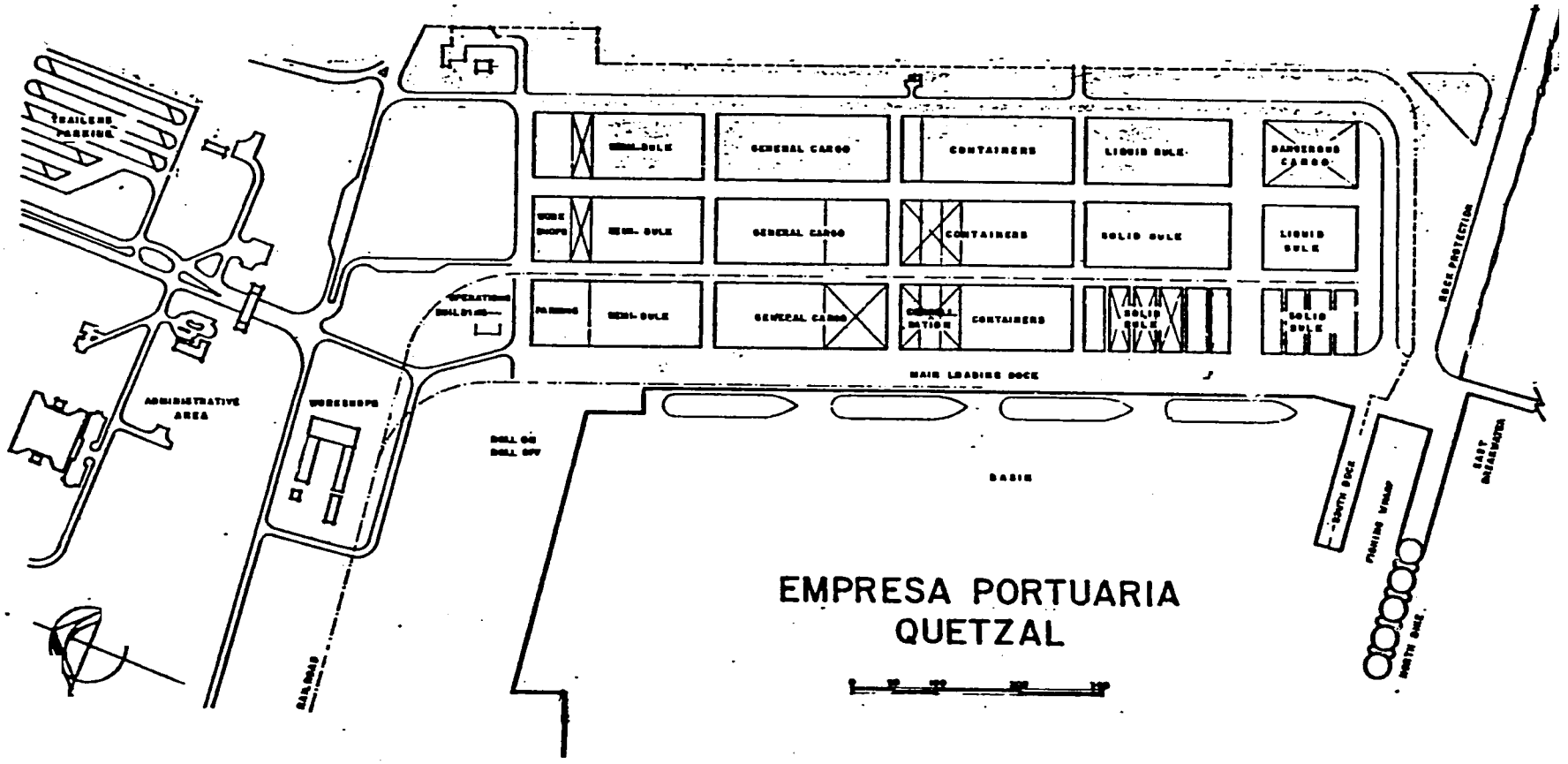
The port is required to contribute revenue to the Treasury, making the costs ascribable to port operations hard to determine. Port officials doubled tariffs in January 1987 to generate more revenue. These revenue requirements include the funds transfered to the Treasury. These transfers do not reflect the costs incurred in performing normal port functions.

International shipping lines maintain regular, scheduled service to Santo Tomás. Among the major lines are Sea-Land Service, Seaboard Marine, Coordinated Caribbean Transport (CCT) and Hapag Lloyd. New Orleans and Miami are the major US ports linked to Santo Tomás. Sea-Land is, by far, the major carrier, and they offer direct service to Miami every Tuesday and direct service to New Orleans every Sunday. The United States is the major exchange partner for both exports and imports, as shown in Table 4.9.

Table 4.9
Guatemala
Santo Tomás: Import/Export Cargo
Origins and Destinations, 1985
(% of Total Tonnage)

Imports		Exports	
USA	67%	USA	75%
Jamaica	7%	Germany	7%
Sweden	7%	Greece	7%
Belgium	5%	Saudi Arabia	4%
Venezuela	4%	Holland	3%
Germany	3%	France	1%
Holland	2%	Puerto Rico	1%
Antilles	2%	Great Britain	1%
France	1%	Poland	1%
Brazil	1%		

Source: Empresa Portuaria Nacional Santo Tomas de Castilla


TRAILERS PARKING
GENERAL CARGO
CONTAINERS
LIQUID BULK
DANGEROUS CARGO
GENERAL CARGO
CONTAINERS
SOLID BULK
LIQUID BULK
GENERAL CARGO
CONTAINERS
SOLID BULK
SOLID BULK
ROCK PROTECTION
MAIN LOADING DOCK
ADMINISTRATIVE AREA
WORKSHOPS
BASIN
EMPRESA PORTUARIA
QUETZAL

Puerto Quetzal on the Pacific just began operations and has not yet established an extensive schedule of regular shipping service. The port is responsible to and under the control of the Ministry of Transport. The layout of the port is shown on the following page. The wharf length is 900 meters and the draft is 13 meters. Somewhat more than 400,000 tons of cargo was handled by 1985, with exports accounting for some 75% of the total. Major exports are sugar and molasses, coffee, maize, and cotton. Principal imports are fertilizers, chemicals, and vehicles.

Container movements are increasing. In 1985 full 20 foot containers moved through the port totalled 1,300--double that of the year earlier. The number of full 40 foot containers in 1985 was 400--four times the level of a year earlier. General cargo exports in 1985 totalled 300,000 metric tons, up from 250,000 in the previous year. General cargo imports are about 80,000 metric tons a year. Solid bulk imports dropped to 30,000 metric tons in 1984 from 55,000 in 1984. Liquid bulk exports are running about 60,000 metric tons a year.

Table 4.10 shows container movements through the port by container size.

Table 4.10
Guatemala
Puerto Quetzal
Container Movements, 1985

	Container Size	
	20'	40'
Full	1,280	400
Empty	880	275
TOTAL	2,160	675

The imbalance in export and import volumes, noted above, makes it almost inevitable that there will be a flow of empty containers. In 1985 41 percent of containers handled were empty, signifying an uneconomic operation.

Port officials consider themselves trapped when it comes to substantially expanding operations. There is no promotional budget for the facility and its range of services are not widely known in maritime circles. This restricts cargo movements which, in turn, limits the frequency of service offered by shipping lines.

The port is short of pilot vessels, tugs, and electric outlets for refrigerated containers. There is no refrigerated storage space at the port. There is ample space for future expansion.

Improvements to the service that Puerto Quetzal can offer will bring lower transport costs. At present the outward bound products moving through the facility are largely traditional exports. A reduction in transport costs can reasonably be expected to have a stimulative effect on that category of exports. It is also probable--and this is the focus of the present study--that a beneficial impact will be felt by exporters of non-traditional products. Puerto Quetzal is nearer to the capital, which is the center for economic activity in Guatemala.

At the time of the study, an interest in Puerto Quetzal was being taken by the US Department of Agriculture, through its Office of Transportation. Studies were underway to determine the ports' equipment requirements, particularly in relation to the bulk handling of major imports and exports.

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AIR TRANSPORT

Guatemala has a total of about 650 runways, ranging from 500 meter grassy landing strips to the principal international airport at La Aurora, Guatemala City. The airport at Flores handles some international flights, though these are more for the purposes of tourism related to Tikal National Park.

Passenger services were provided to Guatemala City by the following airlines in 1985:

Aviateca (the national line)
Pan Am
Taca
Sahsa
Copa
Lacsa
Mexicana
Iberia
KLM
SAM
Eastern

Commercial aviation in Guatemala is dominated by the national carrier, AVIATECA. In its present form, the airline dates back to October, 1950, when a law went into effect creating it as a government entity. The decree established AVIATECA as a quasi-autonomous body with responsibilities for providing passenger and cargo services domestically and internationally. In 1986, this airline was operating regular passenger schedules to Miami, Houston, New Orleans, and Mexica.

Charter flights, private planes and official planes also contributed to passenger movements. Passenger movements for the period 1980 to 1985 are shown on Table 4.11:

Table 4.11
Guatemala
Air Passenger Movements
(number of passengers)

	1980	1981	1982	1983	1984	1985
Arriving	296,829	251,124	208,664	216,016	224,422	225,545
Departing	294,588	251,827	206,786	210,202	221,094	220,752
Total Passengers	591,417	503,951	415,450	426,218	445,516	446,297

Source: Direccion General de Aeronautica Civil

It is clear that demand for passenger flights has fallen off significantly since its peak in 1979 (625,330 passengers), though of recent years demand has levelled out at about 445,000 passengers per year. It is worth noting that the demand for passenger flights is a clear function of the relative economic health of the country--the fall off in demand parallelling closely the economic downturns of the early 1980s.

The movements of airfreight in and out of Guatemala is shown in Table 4.12:

It is clear from the table that while the demand for export space has risen considerably over the years, the demand for import space showed a marked drop in 1985. As the latest figures show, there is now twice as much demand for export space as for imports.

Of significance is the fact that a greater part of the increase was taken up by space on passenger flights, with very little being taken by additional space on dedicated cargo flights.

Table 4.12
Guatemala
Volume of Air Cargo Exports

Exports
(kilograms)

	1983	1984	1985
Mixed passenger/ cargo	5,323,184	9,413,735	8,213,896
Freight only carriers	2,184,636	2,056,131	2,452,427
Exports total	7,507,820	11,469,866	10,666,323

Imports
(kilograms)

	1983	1984	1985
Mixed passenger/ cargo	4,548,518	5,126,336	3,319,874
Freight only carriers	2,184,636	2,425,411	2,175,266
Imports total	7,507,820	7,551,747	5,495,140

Source: Dirección General de Aeronautica Civil

The subject of air freight in Guatemala was somewhat controversial, with exporters adamant that the service was not adequate and that the demand far exceeded the supply. It was considered that the national airline had a duty to provide the country with an adequate service. Representatives of both private sector and public sector air cargo services claimed that the demand was hard to confirm. The demand was also largely one-way and could not support a regular service at the rates in operation.

It was claimed that the volume of exports by air freight had dropped every year since 1980, during which year three times as much freight was carried as in 1985. The fall in exported freight followed a withdrawal over the years of regular cargo space, in the form of substituting passenger planes with less cargo space and the withdrawal by PANAM of its regular 747 cargo service. Since that withdrawal in 1983 a number of exporters had ceased to export, claiming that there was too much risk involved in sending consignments to the airport on the offchance that there might be some space.

It was also claimed that the irregular service was not helped by the absence of refrigerated storage facilities at the airport, and the absence of any covered area to protect perishables from the effects of exposure.

There is no doubt that where the bulk of air freight is taken in passenger services, that the space available becomes less as changes are made to service a lower demand for passenger space. Clearly, the passenger services have responded within their abilities. The difficulty lies in the lack of response from the cargo services. The figures show that the cargo services are operating to balance their imports against their exports, and that with import falling off there is little incentive to provide increased export space at current rates. Increased space could be

made at higher rates, or it could also be made available by transferring import cargo from the passenger flights to the freight lines. There is also a possibility that freight could be lured from the maritime route--a strategy that has worked elsewhere.

COMPARATIVE COST OF TRANSPORTATION

The Regional Comparison

A pervasive view of most exporters of non-traditional products from Guatemala was that they were paying the highest transportation costs in the region. This charge was investigated, and resulted in the following analysis.

Table 4.13 indicates the comparative rates for a 20-ft container of dry cargo from the various ports of Central America to Miami, or an equivalent Gulf port. The table contains a number of assumptions, needed to make the figures comparable.

The basic figure is the door-to-US-port charge of major shipping lines operating within the country. This figure is the one-time charge levied by the shipping line for carriage from the producer's factory to the dockside in Miami. The charge includes land transport to the port, documentation charges, stevedoring charges, port charges, sea freight, and port and stevedoring charges in the USA. Estimates were made of the current cost of each of these activities in the chain, emphasizing the fact that these separate charges have to be met even if the same company handles the consignment from start to finish. Even shipping lines that operate their own trucking fleets have to pay market rates for trucking operations. Port charges and stevedoring are based on estimates of costs to the average vessel loading or unloading.

Table 4.13
Typical Costs of Moving a 20-ft Container
(US$ Per Container)

Country		Door to US Port	Trucking To Port	Port Charges	Sea Freight	US Port Charges
GUA	A*	2,018	363	100	1,200	355
	P*	2,500	240	100	1,800	360(LA)**
C.R.	A*	1,475	300	550	325	355
PAN	A*	1,700	350	150	850	350
	P*	1,900	300	200	1,040	360
BEL	A*	1,790	40	300	1,100	350
HOND	A*	1,800	300	450	700	350
EL S	A***	2,150	500	100	1,200	350
	P*	2,330	60	100	1,800	360(LA)**

* Atlantic or Pacific port.
** Los Angeles
*** Routing through Santo Tomás de Castilla in Guatemala.

Source: Field Interviews, computations by PBI.

Notes for Container Costs Table.

1. Door-to-US-port charges were based on actual quoted rates for a 20-ft container of typical non-perishable product. Origin was taken as within a 40 km radius of the capital city, and destination was taken as the container yard of a typical US Gulf port (mostly Miami).

2. Trucking to port charges were based on quoted rates for collecting the full container and delivering it to storage at the Atlantic or the Pacific port.

3. Port charges were based on typical per-container costs levied by the port of the country for loading the container from storage to the vessel. Stevedoring charges are included, as are vessel charges. Fixed costs were allocated per container depending on typical volume loaded/offloaded.

4. Sea freight charges were determined to be the cost to the shipper of the purely maritime transport. The charge was arrived at in conjunction with estimates made by operators of the shipping companies.

5. US port charges were based on typical per container charges payable at the typical Gulf port. Fixed costs were distributed according to typical volume loaded/offloaded.

6. The purpose of the table is to enable a general comparison of the relative costs of exporting non-traditional products from each of the countries. All estimates are conservative: most exporters could obtain rates lower than these, but for the inexperienced low-volume exporter the figures are not unreasonable.

The calculation of typical costs for a typical container requires careful consideration: door-to-US-port charges, on the one hand, are directly comparable because they are well established for a particular commodity on a particular route; port charges, on the other hand, are a function of the vessel size, the number of containers handled, the equipment used, and so forth. The door-to-US-port charge was the same for 25 containers or 50 containers, as was the trucking charge, but the port charges--evenly distributed between the containers--were very different for 25 or 50 containers.

One approach was to standardize the calculation by assuming that the same size vessel and the same number of containers was used on each occasion. This concept, however, conflicted with the reality in each country: adopting 50 containers might be representative in one port, but it could be excessive at another. The system adopted was to report the costs that interviewees reported as being their average. These were cross-checked in each country, and the most consistent amount was reported in the table.

The table shows that exporters from Costa Rica had a basic cost advantage in exporting to the USA. Recent introduction of service by one of the world's major container companies, Evergreen, served to introduce increased competition, and so rates were reduced considerably. This company is discussing further plans with the port authorities at Limón in connection with construction of a major transshipment terminal.

Panama, Belize, and Honduras were all charged approximately the same for the 20-ft container service shown. It was felt that the small differences shown in the table demonstrated no real advantage of one country over another in this group.

Guatemala and El Salvador have a rate that is somewhat--though not by much--greater than for Panama, Belize, and Honduras. The Atlantic rate for El Salvador is greater than that for Guatemala, as might be expected since the port used was Santo Tomás in Guatemala.

There was found to be an unexpected consistency in the costs involved in trucking the container to the nearest port--unexpected because the distances involved were so different. In Guatemala, Costa Rica, Panama, and Honduras the rates were comparable, though Costa Rica and Honduras profited from being at the lower end of the range ($300), and Guatemala and Panama had

the disadvantage of being at the higher end ($350-363). For the exporters of El Salvador the trucking cost to Santo Tomas involves an additional $140 over the exporter from Guatemala City. The lowest in the region was the cost to the exporter from Belize, since the capital is adjacent to the port.

Port charges varied considerably, from $100 at Santo Tomás and Acajutla to more than $500 for Limón and $450 for Puerto Cortés. Given the caveats regarding these figures, it would be safe to conclude that Limón and Cortés are comparable in terms of charges. The ports of Panama and Belize fell between the two extremes.

The charges shown for sea freight were the most controversial for the group, since the different lines operated differently, and thus they considered that the costs were not comparable. The point was accepted. However, the figures were retained and serve to illustrate the approximate proportion of the door-to-door charge that is under the control of the shipping lines (i.e. ocean costs), and hence determine the range of reduction that negotiation at conferences could achieve. To attempt to negotiate a 10 percent reduction in a door-to-door charge of $2000, for example, would be unrealistic when this represented a 20 percent reduction to a shipping line whose ocean costs were only $1000.

The range of the sea freight allocation varied considerably, from of the order of $325 per container from Costa Rica to approximately $1,200 from Guatemala. Given the probable accuracy of the survey, it was concluded that sea freight on a 20-ft container to Miami was about $1,000, more or less depending on other factors. Clearly, one major factor that influenced the cost was the efficiency of the port, with exporters from Panama and Honduras benefiting from better-than-average efficiencies.

The sea freight from Costa Rica was distorted by the fact that the major shipping line consolidated in Jamaica before carrying to the USA. Had this not been the case, costs would have been more in line with those of the other ports.

The exporters from Guatemala suffered the expenses involved in loading a considerable number of containers each year (over 46,000 in 1985) without the appropriate equipment and facilities. While the charges levied by the port reflected the absence of such equipment, the cost of slowly offloading each ship using ship's equipment is reflected in the sea freight component of the costs.

Sensitivity of Price to Transportation Cost

Table 4.14 demonstrates the relative sensitivities of different export products to the cost of transportation.

The table shows that, for the most part, fresh fruits and vegetables are extremely sensitive to the cost of transportation. Since these products are sold on a commodity basis--the price is based on the day-to-day balance between quantity supplied and quantity demanded--there is no opportunity for the exporter to pass a transportation cost increase on to the consumer. Any such cost increase has to come out of his margin. Clearly, where transportation accounts for up to 50 percent of the buyer's cost, an increase of, say, 10 percent in the cost of transportation could reduce a seller's margin by considerably more.

Table 4.14
Guatemala
Comparative Unit Costs of Exports
(Typical Unit Prices FOB 1985 US$)

Export Product		Typical Total Transportation Cost as % CIF Price
Shrimps & Lobsters	$10,000-12,500/ton	2-5 %
Frozen Meat	$ 1,900-2,200 /ton	12-15%
Bananas	$ 300-400 /ton	40-50%
Coffee	$ 2,400-2,700 /ton	10-15%
Pineapples	$ 350-400 /ton	40-50%
Melons	$ 340-380 /ton	40-50%
Grapefruit	$ 250-280 /ton	50-60%
Fresh Cut Flowers	$ 2,000-2,500 /ton	55-65%
Fruit Jams/Jellies	$ 500-550 /ton	35-45%
Cocoa Beans	$ 2,000-2,200 /ton	13-16%
Palm Oil Seeds	$ 250-300 /ton	45-55%
Seeds, Tubers, Roots, etc.	$ 860-910 /ton	25-30%
Wood Furniture	$ 1,200-1,500 /ton	20-25%
Doors, Window, etc.	$ 300-350 /ton	40-50%
Bamboo Furniture	$ 4,000-4,200 /ton	5-10%
Cardboard Boxes etc.	$ 530-560 /ton	35-45%
Metal Lids, Tins, etc.	$ 9,000-9,250 /ton	2-5%
Female Underwear	$22,000-25,000/ton	neg.

Source: Banco de Guatemala, computation by PBI

Typical Margin Analysis. Taking the typical case of an exporter of fresh fruit and vegetables, here melons, selling in Miami, a typical breakdown on a tonnage basis would be (Table 4.15):

Table 4.15
Guatemala
Typical Cost Breakdown for Melons Selling in Miami

production costs	$225 /ton
transport & selling costs	$250 /ton
administrative costs	$ 15 /ton
Total fixed costs	$490 /ton
Total income on sale	$650 /ton
Margin on sale	$160 /ton

Source: Field Interviews

The margin is used for recovery of initial investment and payment of interest and, finally, some profit for the producer. It is the margin that determines whether the exporter will remain in business or not.

If transportation and selling costs go up by, say, 10 percent, the distribution becomes (Table 4.16):

Table 4.16
Guatemala
Effect of 10% Cost Increase on Margin for Melons

production cost	$225 /ton
transport & selling costs	275 /ton
administrative costs	15 /ton
Total fixed costs	515 /ton
Total income on sale	650 /ton
Margin on sale	135 /ton

The 10 percent increase in transportation cost has thus reduced the margin by 16 percent, and has probably made production unprofitable. (We have kept the production cost constant, though in reality this would have a transportation content and would thus increase.) Common agricultural products produce very small margins, and it is safe to suppose that most growers in Central America have much smaller margins than that shown in the above example. Thus, as a generalization, every percentage increase in the cost of transportation reduces the producer's margin by 1.5 to 2 percent; since the profit margin is small, only a few percentage point increases in transportation cost will account for all profit and start eating into the producer's ability to repay his debts.

As can be seen from the earlier table of comparable unit costs, melons have a fairly average unit value, and include most of the properties of the typical fresh fruit and vegetable exports of the country. Thus, in economic terms, the above figures could be aggregated and generalized to represent the situation of non-traditional agricultural exports.

It is worth noting that the "traditional" export of bananas falls into the same broad unit-value category of agricultural exports. The characteristic that makes the banana "traditional" and the melon "non-traditional" is that the banana is produced and marketed on a large scale, making use of all the advantages of economies of scale. Even so, the international corporations that trade in bananas frequently run into financial difficulties, and with all their abilities to control and reduce costs and tobenefit from international financing facilities, bankruptcies are common. Faced with the same class of products and small margins but without any benefits of scale, it is to be expected that producers of other agricultural exports in Central America will make a precarious living.

Transport Cost Versus Export Volume. Attempts were made during the analysis phase of the project to determine the sensitivities of export volumes to the cost of transport. It was concluded that, on the surface, the volumes exported were not directly responsive to transportation costs. This conclusion had already been reached by persons responsible for price-fixing of transportation in the country, and was used as a justification for price increases.

Unfortunately, when the actual effects of cost changes are calculated, it appears that it is indeed only on the surface, or in the short term, that the volumes shipped are insensitive to changes in transportation costs. Producers do not stop shipping the moment their costs go up; they merely find it harder to pay their debts and stay in business. In the long term, many will be forced out of the export business entirely, making their volume eventually crash abruptly to zero.

In many cases the port charges constituted up to 35 percent of the cost of door-to-door transportation, and were commonly double the cost of port-to-port sea freight. Thus for commodities where transportation was 50 percent of the buyer's price, the port charges contributed 17.5 percent. A 10 percent increase in the port charges would result in a 5 percent reduction in margin, clearly jeopardizing the producer's ability to service his debts.

Thus there is a clear connection between changes in transportation charges and the ability of the non-traditional exporter to stay in business, but the volumes may not be affected immediately. Since agricultural production starts some considerable time before use is made of the transportation system, and because agricultural cost accounting is not sophisticated in the countries of Central America--the final balances are not calculated until the product has been harvested and sold--there may not be an immediate correlation between the transportation cost and the volume exported.

There will, however, be a correlation between transporation costs and businesses being started or being terminated. Amongst other things, this translates as a connection between increases in transportation costs and bankruptcies. Analysis of the goods traded each year show that a considerable number of items disappear each year from the list of exports and new ones appear. Even though, overall, export values and tonnages may increase,

this only happens because the composition of the exports alters each year. Thus, to introduce an increase in transportion costs and to note that exports did not fall off as a result is to not recognize the damage that is being done to the economy as businesses are forced into liquidation.

Not all the export products, however, are so sensitive to the cost of transportation: those items that have value added as a result of some degree of processing count transportation as a much smaller fraction of the overall cost to the buyer. Where these items are not commodities, and subject to worldwide pricing forces, the price increases can often be passed on to the buyer. With bamboo furniture, for example, prices are fixed by agreement between the buyer and the seller, and the proportion of the cost of transport is only 5 to 10 percent, it is therefore not likely that less would be sold if transportation costs rose, or more sold if transportation costs dropped.

Guatemala is fortunate among the countries of Central America in that more than 50 percent of non-traditional exports involve value-added processing. Most of the other countries have a preponderance of low unit price commodities for exports and are thus supremely sensitive to the cost of transportation.

TRANSPORTATION-RELATED CONSTRAINTS

It cannot be denied that, in a country where the cost of transportation can absorb as much as 50 percent of the income from producing an average export product, transportation plays a critical role in the economy of the country. It is also indisputable that, for the future economic well-being of the country, the competitiveness of the country's exports will have to be improved. For a particular class or quality of merchandise,

the competitive factor is invariably the cost. In terms of transportation, the competitiveness can be improved by, either, reducing the real cost of transportation or by reducing the proportion that transportation cost occupies in the total cost of the products.

In fixing the cost of transportation, three groups have responsibility for entirely different aspects, the lowest overall cost being achieved when each of the three groups performs to the limit of the resources available to it. It is important to establish the limits of this responsibility so that recommendations for improvement are targeted for the right group.

Responsibilities of Government. The government has the responsibility for providing, or for enabling the provision of, those items of infrastructure that could not be provided by individuals or corporations. The government also has the responsibility for ensuring that legislation and institutional requirements do not impede the carriers in the efficient practice of their trade. For efficient operation of carriage services, the infrastructure has to be appropriate and has to be of good quality.

Responsibilities of Carriers. The carriers themselves, operating in an environment of fair competition, have the responsibility for operating the transportation modes as economically as possible. The carriers have to achieve the optimum level of efficiency within the framework of the available infrastructure, the legal and institutional setting, and the demand for their services.

Responsibilities of Producers. The producers or exporters have a responsibility to get those goods for which there is a demand, in the best combination of price, quality, and quantity, to those markets where the financial returns are the greatest.

Interacting Roles of Government, Carriers, and Exporters. In the case of Guatemala, all three groups have ample opportunity for improving the economic cost of transportation, and thus improve the export potential for non-traditional products. The relative importance of the three groups in terms of ability to affect cost are: firstly, the producers, secondly, the government, and thirdly the carriers. The main conclusion of the study was that the carriers themselves did not have it in their hands to significantly reduce the cost of transportation.

It was clear from the interviews that were undertaken that exporters were, with very few exceptions, unaware of the factors that affected transportation costs and of the groups that controlled the factors that affected the costs. The most obvious inconsistency was the inability to relate what was considered to be an excellent trucking service that was provided by the major steamship companies with the cost of that service. It was not clear to the exporters that it was their demand for quality in carriage that had driven up the prices, and that prices would go down only when a lower standard was demanded.

For most of the transportation modes the comments received could be reduced to one of cost. Shortages, inefficiencies, irregularities, unpredictabilities, and so on could all be associated with a cost, and ultimately it was a cost that had to be paid by the exporter to get his product to market. Thus the total cost of transport to the exporter was not only what he paid to the carrier, but also all his losses experienced in the process of exporting. As an example of this: almost all exporters are self-insured, that is, if they lose a shipment--for whatever reasons--they bear the cost of this themselves. Since they are often unable to pass this cost on to the consumer, the cost has to

be taken out of margin. The cost to the nation is thus one of increasing private sector debt and bankruptcies. The recent history of private sector debt is that it quickly becomes public sector debt and hence national debt.

Thus, proposals for reducing the national cost of transportation can be reduced to an exercise in correct cost allocation--or national cost accounting--followed by an analysis of means of reducing the correctly allocated costs.

The Role of the Government

Roads. The extent and quality of the physical infrastructure in the country has a direct bearing on the cost of transport. In the case of Guatemala the highway statistic is 0.10 km of road per square kilometer. Considering that the road density varies considerably within the country, from high density around the capital to very low density on the Atlantic coast, and considering the low average population density, the road penetration represented by the statistic is adequate. The statistic says nothing about the quality of the roads, which is known to have a poor average.

A review of the average condition of the roads in Guatemala concluded that maintenance programs were not keeping up with the rate of deterioration of the highways. Many of the unpaved sections were reported to be impassable in wet weather. The main road connecting Guatemala City to the port at Santo Tomás, over which the major part of the country's exports and imports have to pass, was found to be mainly a two-lane highway with some steep gradients and sharp curves, with no passing lanes for faster-moving traffic; serious damage had occured in places, in the form of rock falls from the uphill side; average speeds quoted

by truckers were of the order of 20 km/hr. In others areas users reported that it was not unusual for a farmer at harvest time to find that his access to the highway system had been completely cut off, and for the crop to be entirely lost.

For Guatemalan exporters and truckers, the state and disposition of the roads was a fact of life. The main request was that roads should be kept passable, not that the design should be improved. However, much of the reticence in complaining of road condition was due to the prevalence of self-insurance. When questioned, most producers of fresh fruit and vegetables agreed that a significant part of a shipment could be bruised if carried over a bad road. They accepted this loss as part of the cost of doing business. Similarly, the owners of trucks complained of the high cost of imported spare parts, likewise considering this factor as part of the cost of business. Both costs could be significantly reduced if the road surface were improved; harvest losses could be reduced if existing accesses could be made operable in all weathers.

Unsurfaced roads in themselves are not unacceptable: there are undoubtly more unsurfaced roads in the world than there are surfaced roads, so most of the world's trade passes over them. What unsurfaced or unpaved roads require is regular maintenance and grading. Paving and surfacing do much to eliminate this cost, but in areas where labor is cheap and plentiful, road maintenance programs can be executed extremely economically. Recent road maintenance and repair projects in other countries in the region--where private sector contractors were used to repair an existing section of road and then maintain it for a fixed period--demonstrated the economic feasibility of the system. The maintenance program can be made even more cost-effective if the design of the rural road is improved: drainage channels alongside, culverts and bridges over streams, protection against slides and washouts, gentle curves and gradients, all these serve to lessen the damage inflicted by the elements and the users.

Road Maintenance Capability. Having determined that the poor state of the nation's roads was contributing to the cost of road transport--both directly as charges for carriage and indirectly as self-insured losses--an assessment was made of the nation's ability to conduct the required level of maintenance program. The following points emerged from discussions with those responsible for road maintenance:

1. It was considered that the annual budget allocated to road repair and maintenance, would permit completion of only a small part of the work required on the national system and an even smaller part of the work required on the local road system.

2. Monies allocated in the past for road repair and maintenance were approximately one third of estimated requirements.

3. The high incidence of crisis work left little capability for continuous routine work.

4. Of the equipment owned by the Ministry of Public Works and Transportation for use on roadworks, some 70 percent was permanently unusable. A large part of the remainder required major repairs.

5. The workshop section tried to keep enough equipment operational to do a reasonable proportion of the planned work.

6. The national workshops were almost totally devoid of the equipment required for the normal maintenance and repair of heavy engineering equipment.

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7. Experienced mechanics were leaving and were hard tc replace, leaving the workshops with a severe shortage of supervisory grades. Younger trainees were unwilling to tolerate the low salaries given to ministry employees.

8. There was a permanent shortage of spare parts, and there was no engineering department to design and manufacture workshop equivalents.

It was clear that the existing administration and organization of the road maintenance and workshop divisions would not be capable of effecting any significant changes to the condition of the nation's roads.

Recent studies in other countries in the region had shown that private sector contractors were able to do road construction and maintenance work more efficiently than public sector workforces. As a result it had been suggested that more of this work be given to private contractors, and that the Ministry should remove itself from active involvement in such work.

While such comparisons may show the public sector in a poor light, given the handicaps under which it operates, the unfavorable comparison is entirely predictable. Given the financial structure of the Ministry, and the need for contractors to be paid promptly, it would not follow that short-term large increases in use of private contractors would result in a less costly situation. Furthermore, given the responsibility of the public sector for emergency work, and for much work beside roadwork, it would not be realistic to expect the public sector to withdraw significantly from working on its own account. In the near term a judicious use of both public and private sector contracting would appear warranted.

For the public sector to fulfill its responsibility for halting the deterioration of the national road network, the following actions are required:

1. A determination of the optimum level of work required to keep the national road network in a state of equilibrium.

2. Provision of adequate workshop, tools, and equipment for the repair and maintenance of the Ministry's equipment.

3. Provision of adequate equipment for undertaking the amount of work determined to be the direct responsibility of the Ministry.

It is hard to see how the required standard of national road would ever be reached and maintained without such a program. Yet, with deteriorating roads, the inevitable rise in transportation costs will become an ever more serious impediment to increased exports. The study team viewed with alarm the fact that the nation was embarking on a major road program without coming to grips with the basic problem of how to maintain these roads, once built.

Rail. The rail system in the country was described as a disaster. The system was operated by the state, and was in a deplorable physical condition. The system was also having financial troubles. There was not the necessary flexibility required for it to compete with road haulage. On a km-ton basis, however, the rail charges were less than for road haulage, but the overriding cost was that of double-handling when using rail transport. A piggy-back system just might be competitive, but there is not the administration in place, or the user confidence, that would make this work. The latest program for the rehabilitation of the road from Guatemala City to Santo Tomás does

not include any significant alterations to road width or other design standards. The road will thus be a slow and dangerous one for the foreseeable future, a fact which will result in pressure to establish a viable parallel rail service to carry bulk cargoes and containers.

The interviewees, when asked if they used the railroad system, replied that they would not use it, the reasons being that it was extremely unpredictable and that it was in the hands of Government agencies, which made responsibility hard to allocate. There was no responsibility accepted by the state agency for any liability for freight being carried. It was reported that schedules were not adhered to and as a result it was impossible for anyone to consign a shipment to the railroad and expect it to arrive at a port destination in time to catch a particular sailing.

The study team, however, were of the opinion that the railway system could benefit from some planning, and since the rail infrastructure was already in place, that some part of the country's development in the future could be assisted by a more efficient rail system. Clearly, however, rehabilitation and reconstruction of the present system would not achieve any desired objectives without the introduction of new operating techiques and an acceptance of responsibility for schedules and consigned freight.

The future of the railroad system is problematical: a considerable capital investment is represented by the system that is in place. Unfortunately, the operating restrictions imposed by the obsolescent design and layout make it impossible for the system to operate to current standards without considerable investment. Since estimates show that both rehabilitation and new construction require similar capital outlays, it can be assumed that the system will serve no different purpose in the future from the function it serves now.

The effect of the economic cost of transportation is well illustrated by the case of rail freight: while the cost of moving a container by rail was approximately half of the road cost, exporters were unwilling to accept the risk involved with entrusting valuable or perishable cargo to the rail companies. It was perceived by the exporters that their potential cost in using rail was greater than the cost of using the alternative modes.

Ports. A major national investment is represented by the ports at Santo Tomás, Puerto Barrios, and Quetzal. The function of government with regard to ports is very similar to its function regarding highways: the provision of an appropriate facility for effectively and economically meeting the demands placed on it by the carriers. (It is the carriers who are essentially the users of the ports.) Unlike the highways and railroad, ports also represent an interface between national and international interests.

The study team concluded that while it would be unreasonable to expect that a solution would be found to the political problems related to the administration of the port, some improvement could be made, given that slow cargo handling was contributing to the high cost of marine transportation, and thus impeding the competitiveness of Guatemalan exports. It was felt to be certainly within the realm of practicality to introduce operating measures into the port that could increase the efficiency and reduce the waiting time and loading time at the port. Even with continued use of organized labor in the port, the introduction of more equipment for loading and unloading would reduce the marine transport cost to the exporter. Such reduced waiting and loading time would be passed on to the exporter by the steamship companies.

If it is accepted that more equipment will be introduced into the ports, then there must also be a properly conceived training program for the stevedores, port captains, and longshoremen. The training program would have to be extremely well considered in order that it meet the realities of the situation at Santo Tomás. In the past, training programs have often given the middle level and lower level managers information and techniques that they could not possibly use when returned to the job. Thus the training program proposed for Santo Tomás operators should be based on the realities of a unionized work environment, where not all improvements in efficiency are seen as beneficial to the members.

In the matter of port charges generally, it has to be borne in mind that international shipping companies develop systems to enable them to provide cheaper and more competitive services. Containerization, Ro-Ro, barge systems, and all the specialized bulk handling techniques were all introduced as attempts to reduce the transportation component in a product's cost. In determining the economics of the new system, assumptions had to be made regarding port charges: it was assumed that all ports, to agreater or lesser extent, charge in proportion to the value of the service offered. For ports where this was the case, the new system was competitive; for ports where this was not the case, rifts developed between the ports and the shipping lines.

The ports of Central America, in general, have an abundance of what is considered cheap labor. Most modern unitized systems were developed to reduce the labor content in loading and offloading operations, based on the situation where labor was becoming prohibitively expensive. For Central American ports to handle the newer systems, more expenditure had to be made on expensive equipment, using hard-to-find foreign exchange. Thus

the port tariff structures in the Guatemala favor the use of the older, more labor-intensive, systems, and discourage the use of the newer systems. There had been thus established a considerable conflict in operating philosophy between the ports and the shipping lines.

The shipping lines are caught between the capital-intensive demands of the users in the USA, Europe, and Japan, on the one hand, and all the ports in the developing countries, on the other hand. It would be a mistake for the ports in Guatemala to do other than charge, as accurately as may be determined, for the actual services provided. Any other approach would cause a distortion in the operating economics of the shipping lines, and would lead to economic services not being made available to the Guatemalan exporter.

Air. The function of the government in regard to air transport is to provide the basic infrastructure to permit this to function competitively. In the case of Guatemala an airport of international standard has been constructed at La Aurora, the features of such a facility being fairly adequately represented. In spite of this, much criticism has been leveled at the providers of air freight service and at the lack of facilities for the export of perishables. The question is: to what extent is it the government's responsibility to intervene in the use to which the facility is put?

The air transport situation in Guatemala has caused a great deal of concern of late, and has given rise to a vociferous campaign on the part of exporters and their representatives. The claim is that their needs are being ignored, and that the government is unwilling to become involved.

As with the nation's ports, the national airport should have all the facilities needed for it to be used as intended. It is indisputable that the airport is intended to be used as a freight facility, so that aspect should not be ignored in terms of equipment and facilities: there must be sheltered storage space, and there must be appropriate handling equipment.

The remaining issues are those of refrigerated storage facilities and adequacy of air cargo service. Without refrigerated facilities located near the airport, much of the cargo that is best suited for air freight--fresh, highly-perishable products--just cannot be produced. A major source of national revenue is thus lost. Refrigerated warehouses are sophisticated facilities, requiring considerable expertise in their design, their construction, and their operation. There are many private-sector firms more than adequately qualified to perform all three functions. Refrigerated warehouses are business ventures, with revenue being gained from charges to the users. They are thus additional costs involved in the act of transportation, and should not be considered the province of government: when costs are in controversy, it is always the most difficult for government to pass the legislation that controls itself. Encouragement should thus be given to private sector companies to construct and operate such refrigerated facilities as are required.

Guatemala has an acceptably efficient national passenger airline, but one which has a poor record in dealing with freight. Private-sector airlines are also criticised for their record in dealing with air freight. Petitions and public meetings have done little to help. As matters stood at the time of the study, little improvement could be expected in the air freight situation.

In the case of air transport we have the situation of matched risks: the exporter is not willing to face the risk associated with a deficient air service, and the air freight services are unwilling to provide a service in the face of absent cargo. It is interesting to note that the producers of perishable products that can go by sea are willing to face the risk of a shortage of refrigerated containers, but the producers of flowers are not willing to risk increased production without assurances of increased air service. In both cases, the carriers--the shipping lines and the airline--have established what they consider to be the maximum sustainable level of service in the absence of further assurances. For a solution to this impasse it is necessary to look at the legal framework within which business has to function in Guatemala.

Legal Framework. The role of government in transportation is not purely that of providing physical infrastructure, but also in providing a legal and institutional environment that permits the economic operation of transport facilities. The major environmental obstacle encountered was the legal one: risk is typically minimized in other countries by the use of contracts of carriage, entered into between the shipper and the carrier. Some use of contracts was made by organizations in Guatemala, more often between major producers and major truckers, but also between major maritime shipping companies and truckers. It was not normal for the typical exporter of non-traditional products to enter into a contract with a carrier ahead of time. The request for transport was often made just prior to harvesting. While this practice will be discussed later, it is relevant to consider here the role of government in producing a situation where contracts are avoided.

There is a close correlation between the history of contract law and the history of international trade: security in trade was greatly dependent on enforceable contracts. Trade without contracts places all the advantage in the hands of the strongest party. For contracts to work, however, the outcome of default has to be fairly predictable, and the cost of a claim has to be reasonable in comparison with the value of the merchandise. In Guatemala exporters expressed reluctance to involve their operations in legal formalities. They avoided as much as possible any action that might require settlement in a court of law. The impression was that the procedure was expensive, time-consuming, and had unpredictable outcomes.

For transportation systems to operate efficiently there has to be legal parity between the shipper and the carrier: neither must be allowed an unfair advantage over the other. For the most part, this parity does not exist in Guatemala, and the major disadvantage is that of the shipper--the owner of the merchandise. Because of the absence of contracts, there is very little liability borne by the carrier.

To improve the situation, the government needs to look at the process for dealing with contracts in the country. For trade to be given the best chance to improve, contracts between parties must be routine, and the methods of settling disputes must also be routine. The responsibility of government in this respect must be to encourage the use of contracts, but it should also set up procedures whereby the contracts can be fairly, quickly, and economically enforced.

Returning to the impasse over airfreight, three issues are waiting on a first move:

1. Neither the national carrier nor the private-sector carrier will consider providing additional service until the shippers guarantee the cargo.

2. No user of air freight will increase production until one or other of the carriers has guaranteed space (in fact, a number of producers have cut back on production to minimize their risk under the current regimen).

3. Without a solution to 1 and 2, there is not enough information available to enable any refrigeration company to design, construct, and budget for operating a warehouse facility.

The only solution is one of organization, and the group requiring the organization has to be the one that has the potential for wielding the maximum power: the exporters. The first thing to do is to determine amongst themselves how much cargo volume they represent; if possible, they should also determine how much incoming cargo they could attract. They should then determine for themselves the cost of chartering their own plane on a schedule that best suits their purposes. If they represent enough demand amongst themselves for independent chartering, they should contract amongst themselves for supply of cargo, and they should agree to a production schedule. They can also agree to supply demand for a refrigerated warehouse. If, in the light of this, there is no response from the national airline or from the other air freight company, then the group can go ahead and contract with any other group for the provision of the charter service.

In this way, the stand-off between the carriers and the shippers is removed: the shippers have removed their risk by providing their own insurance, or their own assurance of service.

The real point at issue here is not one of air freight or no air freight, but rather one of creating an environment that encourages cooperation for business purposes versus the laws of the jungle. In his study of the Costa Rican air freight situation, the consultant, Wendell R. Stevens, stated:

> "Shipper, agent and carrier communication and trust have deteriorated to an unworkable level. An executive of exceptional ability and stature may be able to guide the industry back to a state of mutual trust and confidence."

Our interviews showed that a similar lack of trust and confidence pervaded the whole of the business fabric in Guatemala, and crippled the ability of groups with similar interests to get together to solve their problems in concert. This is not to say that the business community of Guatemala is operating in a cloud of acrimony and mistrust, just that there is a marked reluctance to collaborate for genuine mutual benefit.

It is not suggested that contracts be introduced at every stage of trade in Guatemala. There is no need for business to be made any more complicated than it is. It is, however, felt that the business community's ability to act together to obtain better service would be improved if the consequences of binding agreements were consistent and were better understood. Without the formation of larger groups to purchase transportation services, the Guatemalan exporter will remain at a disadvantage in the markets of the world.

The Role of the Producer

It was not understood by most interviewees that their own decisions, as much as anything else, influenced the transportation cost. Transportation was seen as a basic commodity that should always be available in the quantity and quality demanded, but at a price that ensured that the product reached the selected market at a competitive price. The impression was given that if these requirements were not met, then the government should step in and ensure that they were met. This fundamental misunderstanding led to the formulation of demands by groups of producers that were directed at entirely the wrong targets--chiefly the government.

The transportation system within a country is a given: the system changes very slowly, and it does so mostly at the demands of the users. When a producer is planning a product for export, the factor of transportation has to be included in the planning. It is erroneous to consider that, merely because natural resources permit the production of a certain commodity, that that item is therefore a candidate for export. The process for determining the exportability of a product is long and complicated, and was not commonly followed through by exporters. The vicious circle that operated in this case was: there was so little margin to make in exporting common non-traditional products that exporters were unable to afford marketing and logistics studies, and so they were forced to perpetuate the same mistakes, and so perpetuate the small margins.

It is not the purpose of this report to serve as a manual for export marketing studies, but insofar as they bear on the cost of transportaion, the following points require consideration:

1. The product. As mentioned, the ability to produce a product is no automatic qualification for a place in world markets. Any new product makes an additional demand of the transportation system. Under some circumstances increased demand helps reduce the transportation cost. In many others it only serves to put the cost up--for all the users. Thus an export product unwisely chosen may not only be unprofitable, but it may also serve to make other products unprofitable. As an example of this phenomenon we would give the case of a new exporter of perishable products demanding refrigerated containers at a time of existing peak demand. In this situation, while the charge for the containers will not necessarily increase, when the quantity of containers is relatively fixed, loss will be experienced by some producers in their being unable to acquire containers.

2. The volume or quantity. All other factors being equal, the per ton cost of transport can be reduced if the quantity shipped is increased. There is a distinction that has to be made between increased marginal demand, where costs can be increased, and true bulk handling. One additional producer, acting as an individual in demands for transport, is a user at the margin--even if the product being shipped is the same one being shipped by all the others. Where a significant volume can be handled at any given point in the transportation chain, and where there is one representative of the shipper and one representative of the carrier, then the nature of the transportation changes and the costs can be negotiated downwards. As an example of this one can look at the pineapple situation in Costa Rica: a number of small producers have entered the export market, and a major fruit company has planted a massive acreage. The

individual producers are producing at the margin and will eventually push up the cost of transport; the major company has chosen the quantity so that fleets of trucks can be contracted and refrigerated ships can be chartered. The pineapples from the two groups of producers are destined for the same markets; the price demanded by the major producer will set the price for the smaller producers, and so the margins for the smaller producers will be far smaller than for the major producer.

3. **Origins and destinations.** The discipline of transportation logistics requires complex analysis. The main objective of the exercise is to make the margin remaining for the exporter as large as possible. The analysis involves the balancing of quantities, times, different markets, alternative transportation modes, and mixes of products until the maximum margin has been identified. In the case of Guatemala the main exporting market was the USA; it was normally assumed that exports meant sending to the USA. When exporters were asked if they had investigated markets further afield it was found that they had not. One of the main advantages that Guatemala has over other countries is its Atlantic and Pacific Ocean access: to export from this country in only one direction is to ignore a major potential. It is not inconceivable that markets exist for Guatemalan products as far away as Australia and the Middle East. Interviewees tended to consider transportation costs to such regions as prohibitively expensive, without considering whether local prices obtainable for Guatemalan products might not justify the extra cost. Where there is a considerable amount of one-way traffic, bargains may be struck by providers of cargo in the return direction: there is a Far East connection for

imports by way of Puerto Quetzal, though very little gets picked up. It might be possible to arrive at a creative negotiation by supplying cargo for these vessels so that they could return directly to the Far East. The transportation cost to cross the Pacific can, under the right circumstances, be less than the cost to ship to the USA.

4. Marketing. Selling anything in the USA is a difficult and potentially expensive exercise. Selling basic food commodities--fruits and vegetables--is not less difficult than for manufactured items. Basic foods are difficult to differentiate as to origin, and so it is hard to establish any brand loyalty. The major fruit companies have managed to produce just the right shape, size, and consistency of banana to capture the optimum market, and in doing so have even managed to associate brand names with the fruit. The cost of the required research and development has been huge, and the continuing promotion also consumes considerable funds each year. There is now considerable effort being expended in trying to put labels on all fruit and vegetables, and for the companies that do this to promote their product by name. The competition in this field is fierce, and fruit and vegetable growers without the resources for this type of promotion will find it hard to establish themselves in the market. Guatemalan exports are indistinguishable from all the same exports from the rest of Central America and the Caribbean. This means that the first country that promotes its products on a national basis, and can produce a consistent range of products that are considered desirable by the US consumers, this country will stand to corner a large part of the market. Even at the level of the individual exporter, much can be done to increase margins by targeting the product and its package

to the intended consumer. Exporters have to realise that selling in the USA is not a larger version of selling to Guatemala.

Florida Ports. As with the other countries in this study, the question arose as to why such a high percentage of the sea freight was sent to Miami. Some cargo was destined for New Orleans, and an even smaller amount went to Houston, but by far the greatest amount of cargo destined for the USA called in at the ports of Miami and Tampa. Producers who used maritime transport gave a number of reasons for their preference for Miami, but most of the reasons had little to do the the marketing logistics of their products. One of the main reasons for the preference for Miami is that it is an area in the USA which deals in Spanish. It is also an area which has come to specialize over the years in the handling of tropical products from Central America and the Caribbean.

Much complaining took place, however, on the treatment at the Florida end of the transportation chain. Many shippers stated that they had lost shipments after arrival in Miami, that their produce had been sold off at rates that were clearly below any resonable market rate, and that they felt helpless in the hands of the forwarders in Florida. Most of the producers of agricultural products and flowers sent their products to Miami on consignment. This invariably encouraged the forwarder in Florida to spend his time with the larger consignments, where his income was dependent on receiving a reasonable price, and devoting very little of his time to the small consignments, which would probably not be worth his while anyway. Hence the prevalent feeling that the small shipper was invariably being short-changed.

Many small operators in Guatemala had lost considerable sums of money over the years in this operation in Florida. It was not reported that these conditions were prevalent in the other gulf ports. The study team considered this problem, since it was one that affected most of the other countries surveyed as well, and concluded that the solution was basically in the hands of the exporters. These exporters should be encouraged to set up theirown forwarding and receiving organization in Florida using their own nationals. These would then be responsible to their own people, and would ultimately return to Guatemala, to assist exporters as advisors.

The Role of the Carrier

Few producers had any overall complaints of the road system or of the trucking industry. In fact, many interviewees expressed the view that the service offered by the road transporters was exemplary. While there was no shortage of horror stories concerning lost and damaged consignment, most exporters treated the current situation with equanimity. They expressed the views that they were stuck with the roads and trucks currently available, and they did not see that either the road condition or the state of the trucking industry affected them directly. The two major complaints were:

- The cost of trucking was high.
- There was a constant shortage of refrigerated containers for their perishable exports.

It was assumed that the cost of trucking was high because the cost of diesel was high, and it was supposed that the shortage of containers was a result of a miscalculation by the shipping companies--the main suppliers of the containers.

The situation was discussed with trucking operators, at which time the following points emerged:

- Most of the nation's exporters of non-traditional products, being exporters of fresh and frozen fruits and vegetables--or of perishables in general--were bound to use one of the major maritime shipping lines because only these provided refrigerated containers.

- All the major shipping lines operating out of Guatemala offered a door-to-door rate. This service included the handling of a consignment from the premises of the shipper to the premises of the consignee. One bill of lading and one invoice covered the whole arrangement.

- Refrigerated container traffic was purely one-way. Bringing empty containers into the country was not only costly in itself, in that costs of transportation, handling, duties and so on had to be paid, but that while the container was being brought empty from the USA it was losing revenue that could have been found by using it elsewhere.

- The balance of dry containers was slightly in the other direction--there being more demand for dry containers for imports than for exports. Some groups had tried to relieve this situation by offering importers the use of refrigerated containers.

- There was a mixture of arrangements between the shipping companies and the trucking companies: some subcontracted the land portion of the transport to a local trucking company, some just hired a cab with a flatbed to take the

containers, while others hired a cab only to tow their own container/trailer units, and some operated their own trucking operations. Either way, the shipping line incurred the normal national charge for road transportation.

- The fundamental shortage of refrigerated containers was being exacerbated by farmers using these in place of adequate refrigerated warehouses to take out the "field heat" from their crops. No penalty was enforced against any exporter who kept a container beyond a minimum free period.

- The shipping companies considered that the service they offered to the shipper--a low price and all frills--was being offered in order to have the refrigerated containers returned as soon as possible to their more profitable operation in the USA.

- The offer of a complete service "door-to-door," while offered in an effort to generate business, compromised the carriers into having to truck in and out of locations where the access roads were not otherwise acceptable. This, together with the poor state of some of the paved roads, made a high proportion of vehicle breakdowns almost inevitable. The high proportion of down time, taken with the high cost of imported spare parts for the transportation equipment, served to make road transportation particularly expensive. The high cost of diesel, and the low average speeds on the main roads, all contributed to the high cost of road transport in the country.

Transportation brokers need to be established in Guatemala City to coordinate the container requirements of importers and exporters. Initially it may take some work to persuade importers that there is some benefit to using containers for their cargo when they have been used to using sacks or pallets. If the negotiated rates with the shipping companies were adequate, it could be arranged that the changeover from unitized cargo to containerized cargo for the importer was achieved without any major cost. Basically if the importer could be encouraged to use containers because of a lower sea freight rate, it would help offset his cost of changing over from one packing system to another. Transportation brokers normally provide this service, but this sector was not present in Guatemala.

In a fairly open and competitive market, such as is the case of transportation in Guatemala, there is very little in the way of profits. Truckers were adamant that rate-cutting should be stopped and that the government should step in and fix rates. Only in this way was it felt that the trucking industry could provide a secure living for its operators. It had to be pointed out that transportation was a service that was provided to exporters, and that the trucking industry would only be healthy for as long as exports were healthy. Rate-fixing inevitably established prices that enabled the least efficient operator to make a profit, and thus reduced any incentive for increased efficiency by those who were enjoying the benefits of the fixed rates. With a secured income, there would also be no incentive to provide the shipper with any quality of service, and so the shipper would end up paying for more losses and delays.

The individual carriers in Guatemala had in their own hands the means to increase the demand for their services. They could:

- Cooperate with the shipper. It was found that carriers did not take any hand in assisting shippers to consolidate or rationalize their shipments. There was no system of offering bulk discounts if several exporters collaborated, and there was no discount offered for delaying harvest until after the peak demand.

- Introduce training schools for drivers and mechanics. The team was informed that the major shipping companies that used local transport services kept a list of acceptable and proven drivers. They did not consider that the general level of ability of drivers was sufficient to entrust their consignments to just any driver. Exporters complained that drivers had no concept of care for the cargo, and they had been known to turn down thermostats on refrigerated containers to conserve fuel. The modern truck is a complicated and expensive piece of equipment, and becomes more complicated each year. To entrust such equipment into the hands of someone who does not understand the complexities leads to expensive problems. It is now accepted practice in other countries that truck drivers should receive basic instruction in care and maintenance of the equipment and in care of the cargo. With better drivers, operating and maintenance costs can be reduced, and damage to cargo can also be reduced.

- Introduce management seminars for operators. There is a great deal that managers of trucking companies could learn from experience gained in other countries and from a systematic and formal analysis of the trucking business. We would not want to give the impression that operators in Guatemala do not understand their business, since they are clearly the experts on the subject, but where the environment is competitive it has been found invaluable to supply managers with the tools to analyze their industry and to plan their activities.

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CHAPTER 5

RECOMMENDATIONS

RECOMMENDATIONS SUMMARIZED

The recommendations contained in the previous sections are listed here under the headings of "physical" recommendations and "institutional" recommendations. The first group requires the use of funds to construct or improve items of infrastructure, while the second requires a program to bring about changes in operation, environment or legislation to effect an improvement in the use of transportation.

Only those items that could be considered on a national basis, or that would make sense from the perspective of national policy, are considered. Those matters that are best handled at the regional level are left for the regional report.

The recommendation listed are then reconsidered and prioritized in the final sections of this chapter.

When possible, figures for costs and benefits are included with the prioritized recommendations. These are based on the method for computing benefits contained in Appendix B to this report.

Physical Recommendations

- o complete reconstruction of the deteriorated section of the highway to the port at Santo Tomás.

- o procure additional equipment for the port at Santo Tomás to bring its efficiency into line with the other ports in the region.

- o review the repair and maintenance procedures for all port equipment and develop an assistance and training program to improve the efficiency of equipment use.

- o construction and operation of strategically located container freight stations. Requires study to determine location, size, and recommendations for appropriate operation system.

- o review airport facilities. Draw up and implement program for provision of refrigerated storage, covered areas, loading equipment, etc.

- o procure the equipment that is lacking for Puerto Quetzal (one container crane, pilot boats, tugs, electrical outlets for refrigerated containers).

- o review existing road repair and maintenance procedures. Formulate program to make all roads passable in all weather and improve maintenance of rural roads. The program needs to start at the level of equipment maintenance and parts procurement.

Institutional Recommendations

- o formulate and introduce a simplified system for entering into and settling contracts
- o formulate and introduce a simplified export procedure
- o formulate and introduce a legal code that would permit the introduction of export brokers
- o formulate and introduce port labor rules that would permit more efficient operations
- o assist with setting up legally constituted bodies for exporters
- o set up and run seminars in better business practices for managers of trucking companies
- o set up and run schools for truck drivers and mechanics
- o set up and run seminars in port management for senior port operators
- o set up and run classes for port equipment operators and mechanics
- o set up national representation office in Miami to check cargo arrivals and look for buyers

- o introduce and implement assistance programs for group problem solving

- o set up a national marketing and promotional organization

PRIORITIZED PHYSICAL RECOMMENDATIONS

1. Equipment for Santo Tomás

The cost of the inefficiencies at Santo Tomás have a significant effect on the cost of exports, not only from Guatemala, but from El Salvador and Honduras as well. A study is currently under way of the needs of the port, as a result of which detailed costs will be known. The cost of installing a 40 ton container crane will be about $3 million, assuming no additional work is needed on the dock structure. The project could reasonably easily be included within the five year time frame. The benefit would involve reducing costs by reducing ship times in the port, with the target of bringing the maritime component into line with that of other ports. With a resulting reduction of the equivalent of $150 per container, the annual saving would be nearly $7 million, indicating a possible increase in exports of $28 million.

The recommended capital outlay would need to be accompanied by a program of retraining, maintenance improvements, and operations optimization if the investment is to have the best results. The Empresa Portuaria Nacional Santo Tomás de Castilla, through its junta directiva, is responsible for port operations.

2. Review of Port Repair and Maintenance

Both the nation's ports require improvements to the equipment maintenance and repair procedures. What is needed is an investigation of the procedures, the facilities available and the level of mechanic training. The program thus requires an initial study to determine the requirements, followed by programs of procurement and training. The study could take place within the next year and would cost of the order of $300,000. The subsequent stage would involve short- and long-term programs, the costs of which would be determined in the study.

Port and sea freight charges of non-traditional products amount to $182 million per year. The effect of improved equipment operation would reduce ship stays in port, cut down on stevedoring costs, and reduce delays of moving cargo within the port. Even an efficiency improvement of one half a percent would save of the order of $0.8 to $1.2 million per year, and could increase exports by up to $5 million.

3. Review of Road Repair and Maintenance

As with the region's ports, the region's roads were determined to be in need of improved levels of maintenance. The determination of the investments needed to improve surfaces on a national basis was beyond the scope of this study: this would be a function of existing maintenance programs, operational efficiencies, and the combination of private and public sector contracting. Before a program could be introduced it would first

be necessary to review current levels of capability--reviews of public sector equipment and personnel, the condition of the equipment, the condition of repair and maintenance facilities, and so on--to determine the skills and facilities that are lacking. An immediate study with a budget of $500,000 would be able to review the situation and propose programs for improvements.

Land transport for non-traditional products absorbs $31 million per year. Of this, truck maintenance and repairs could account for $5 million. Improved roads could benefit this figure by up to 10%, or $0.5 million a year. Non-traditional exports could be expected to increase by a possible $2.5 million.

4. Container Freight Stations

A major impediment to consolidation of container freight was the absence of container freight stations. It is therefore recommended that a program of construction of strategic container freight stations be undertaken around the country. The first step in the program would be the construction of one station at Santo Tomás followed by one in the vicinity of the capital city.

For this study it has been assumed that 10% of containers at the port would use the container freight station, or about 4,000 containers per year initially. This quantity would require a ten-door facility of about 60 x 45 meters. The facility would also require a considerable amount of land for parking (say 5 hectares) services, equipment, and so on. A budget of $1.2 million for each of the facilities is recommended, or $2.4 million initially. Benefits would result from an effective reduction in

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road, port and sea freight costs, possibly an effective $500 on the 10% using the facility. Total annual benefit would be $500 on each of 4,000 containers, or $2 million, resulting in increased value of exports of $8 million.

5. Refrigerated Warehouses

As with the container freight stations, a serious impediment to the increased export of perishable products was the absence of refrigeration facilities. Unlike container freight stations, refrigeration facilities are needed within a short distance of the harvest areas, and cannot just be constructed near the port or the capital city. The only facility that would be predictable in this way would be one located at the airport.

Refrigerated warehouses are expensive items, and require careful studies to determine demand, sizes, compartments, power, location and so forth. Such studies were outside the scope of this investigation. Thus it is recommended that such a study be undertaken to determine refrigerated storage requirements. The study might take 2 months and cost of the order of $200,000,while the typical refrigerated unit would cost about $1.8 million.

The benefits could include a more efficient use of refrigerated containers and an increase in exports of perishables by air. Total increased exports could be of the order of $15 million per year, a large proportion coming from an immediate increase in air freight,of about 10 percent.

Both the container freight stations and the refrigerated warehouses should be considered as private sector initiatives. However, where the cost of establishment is high and private funding is not easily available, the government has to play an

initial role. A similar situation in Costa Rica resulted in a loan from the Spanish government for seven refrigerated warehouses which, once constructed, were handed over to the private sector for operation. Such a solution could be adopted in Guatemala.

6. Non-Priority Items

- the reconstruction of the road to Santo Tomás was not included in the list of priorities because the project is already under way and requires no additional intervention.

- the provision of equipment for Puerto Quetzal was not considered worthy of priority status until non-traditional export markets that would require the port had been identified. There is no doubt, however, that traditional exports and all imports are being hampered by the shortage of equipment.

- the review of the airport facilities would not be a priority until a solution had been found to the problems of infrequent service and undependable demand.

PRIORITIZED INSTITUTIONAL RECOMMENDATIONS

1. Contract Law Amendments

The export of non-traditional products from Guatemala is not likely to become a major and permanent force in the economy unless the risks of doing business can be apportioned by contracts. Contracts are fundamental to transport, and if these can be entered into easily and if disputes arising can be resolved cheaply and consistently, then many of the other problems relating to transport would be resolved automatically. At the time of the study there was found to be a definite disadvantage to cooperating for mutual benefit.

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It is therefore recommended that a program be formulated to review the status of contracts in Guatemala and determine how a legal contractual simplification process can be set in progress. Since such a program was outside the experience of the project team, no attempt was made to estimate the cost. The benefits would take the form of a steady year-by-year increase in non-traditional exports. At a reasonable minimum of a 2% increase in sales per year attributable to increased cooperative efforts, the benefit would be of the order of $13 million increase each year.

While a complete overhaul of the national contract law would clearly be a long-term project, improvements and clarifications were determined to be possible over the short term. These would include:

- o the introduction of contracts of carriage. A simple form should be introduced that would enable a shipper and a carrier to enter into agreement regarding date, quantity, and cost. The penalties for default should be unambiguous and should be easily collectable. The benefit would be that the carrier could plan his operations well ahead of time to provide the most economical service. As a long-term goal, since such a measure would benefit both truckers and steamship companies, a reduction of up to 10 percent in transportation costs could be achieved. The costs of the program were not estimated, but it was determined that the most significant part would be in the promotion of the system.

- o the formation of exporters' groups. It is intended that a negotiating team be set up to acquire preferential rates for members of the groups. While the organization of such groups can be easily thought out, a weakness always lies in the contractual arrangement between the group and the members: without commitment on the part of the exporters, the negotiators would find themselves looking for tariff deals without any assurances of volume. Again, it is recommended that a program be followed to determine the best legal structure that would permit a management group to bargain on behalf of prospective exporters. Given the volume, the potential for freight negotiations is quite considerable.

- o In the absence of appropriate legal remedies, the services of brokers are almost unknown. These services, however, would be essential if full advantage were to be taken of the contract law revisions: brokers are traditionally the ones who take advantage of the difference between regular rates and bulk rates. It is therefore recommended that, as part of the contract law amendment program, a legal framework be established for the operations of brokers in Guatemala.

3. Overseas Representation

It is recommended that an office be set up in, say, Miami to:

1. Inspect shipments arriving to certify condition etc.
2. Investigate to determine better markets and buyers for the Guatemalan products.
3. Train Guatemalans of the region in the practice of international trade, with the possibility that some trainees may take over the role of brokers.

The costs and benefits of this proposal were determined to be: cost of $300,00 per year and increased exports at not less than $7 million.

The representation could be established in the very short term. There is the possibility that SGS could offer many of these services at a lesser cost than that of setting up a separate independent office.

4. Group Problem-Solving Assistance

A major weakness in the country was seen to be the lack of experience in group problem-solving techniques. An improvement in this field, when taken with the previous three recommendations, could put all the factors in place for genuine improvements to the problems of non-traditional exports.

It is therefore recommended that experts in this field be contracted to train a seed group of individuals in the processes of logical problem definition, consideration and selection of solutions, strategy formulation, and implementation programming. Costs would be about $300,000 per year, for, say, three years, and benefits would be derived from measuring successes with specific problem areas.

5. Simplified Export Procedures

Of all the countries in the region, Guatemala clearly has the longest process for export documentation. The cost of this to the country is the impediment it becomes to the potential exporter, and the cost to an existing exporter of all the administrative staff required for the processing. There is also the loss of

those contracts that cannot be honored because of the inability to respond quickly enough. The regional acceptable average for export paperwork is between 24 and 48 hours for a reasonably efficient firm, with the current trend aiming towards 3 or 4 hours.

The benefits from such a program include:

- o reduced production costs and administrative costs in having fewer employees dedicated to export paperwork.

- o reduced transportation costs resulting from fewer delays for inspections and checks.

- o encouragement to more producers to go into exporting.

At the time of the study the National Council for the Promotion of Exports (CONAPEX) had obtained agreement for the establishment of a "ventanilla unica." The effort needs to be continued, and CONAPEX should be given any assistance it needs.

6. Education Programs

It is recommended that education and courses be made available to all those involved in the export process. This is not to take away from any of the education programs currently implemented their due recognition, but rather to recommend that they be supplemented by:

- o A training program for truck drivers. It is recommended that a school for Guatemalan truck drivers be set up in Guatemala City. This should be a collborative project between the Guatemalan trucking companies, manufacturers of trucks, and an enabling agency such as USAID. The aim of the school would be to turn out drivers who were aware

of the role that they play in the trucking industry, and how correct driving habits can lead to more efficient use of equipment. The graduates of the course would receive diploma that would be recognized as a sign of superior ability. The cost of such a school would depend to a great extent on how much assistance could be found from the major equipment manufacturers. The Asociación Guatemalteca de Transportes tried to undertake such a program on their own. They would be ideal candidates for heading a revised version of their scheme.

- A training program for mechanics. It is recommended that a school for Guatemalan mechanics be established in Guatemala City under the same arrangement as the drivers' school. The aim of the course would be, not only to teach mechanics the details of repair and maintenance of heavy equipment, but also to demonstrate how to recognize and measure the results of a successful maintenance program. Again, each graduate would receive a diploma of competence.

  The cost of buying equipment for and setting up such a school would easily reach $2 million, but as with the drivers' school, assistance is available from equipment manufacturers. Assistance to INTECAP would be the best way of putting this program into effect.

- A training program for managers of trucking companies. It is recommended that a series of seminars be arranged for the managers or would-be managers of trucking companies. The purpose of the seminars would be to introduce ideas for improving efficiency of operations. In the long term it is expected that such a class, correctly conceived and executed, could end up in eliminating empty back-hauls, and thus cut the cost of trucking by half. A more realistic estimate would be a 15% reduction in trucking

costs through generally improved managerial practices. The speakers would have to be recognized experts in the field, and should clearly be able to deliver the seminar in Spanish. An annual budget of $75,000 would be sufficient for six speakers per year. If the speakers could visit more than one country, then the per-country cost would be less. A training program for port managers could be run on the same lines. INCAE would probably be able to undertake both the national and the regional versions of the program.

7. Increased Number of Inspectors in US Ports

A major item of cost for the average non-traditional export is the cost of maritime transport. Any program that reduces this cost can have a significant effect on increasing exports. The shipping lines complained that there was a shortage of US Customs and Department of Agriculture inspectors at US ports, and that this shorage was contributing to the costs of their operations by delaying perishable products adding to the waiting time of truckers at US ports, by tying up shipping line personnel, and by accumulating storage charges.

If, by the introduction of additional inspectors, the average truck waiting time would be reduced by 45 minutes, the saving for non-traditional exports could approach $1 million each year, resulting in possible export increases of $3 million. Although the relationship established in Appendix B does not necessarily hold good for savings made after landing at a foreign port, the savings could be significant.

It is recommended that a program be established to investigate how the current shortfall can be made up; though it is known that the regional shipping lines are already bringing pressure to bear to resolve the issue. Discussions with USDA

personnel resulted in the suggestion that pre-inspection of cargo at the country of export would be the most effective long-term solution. The USDA has programs for training pre-inspection inspectors which it undertakes where a need is demonstrated and where agreements can be reached with the foreign government concerned. This approach should be tried in the case of Guatemala.

The remaining items on the list were not considered priority items on a regional basis. Port tariff structure review, while of short-term regional benefit, was considered a longer-term national objective. The same argument applied to the formulation of more effective port labor rules: much work was required within each country before a regional rationalization could be effective.

APPENDIX A

GUATEMALA

NATIONAL ECONOMY

AGGREGATE ECONOMIC ACTIVITY

Gross Domestic Product

Gross Domestic Product is the best single indicator of the economic health of the nation. Partly as a result of downward pressure on the prices of traditional products, there has been no significant growth in the Guatemalan economy since 1979. As Table A.1 indicates, the estimate of real Gross Domestic Product (GDP) for 1987 is below the level of national output in 1981:

Table A.1
Guatemala
Gross Domestic Product
(millions of 1982 Quetzales)

	1980	1981	1982	1983	1984	1985 (estimated)	1986 (estimated)	1987 (estimated)
Nominal GDP	7,879	8,608	8,728	9,035	9,397			
Real GDP (millions of 1982 Quetzals)	7,879	7,932	7,652	7,446	7,475	7,475	7,475	7,525
Percent Change in Real GDP	+.67	+.12	-5.58	+.62	0	0	+.67	

Source: Bank of Guatemala; estimates for 1985, 1986, and 1987 by PBI based on discussions with Bank of Guatemala officials.

Gross Domestic Product, by Economic Sectors. Table A.2 sets forth the industrial origin of GDP in 1984, as expressed in percentage of the total.

Table A.2
Guatemala
Industrial Origin of GDP

Activity	% of Total	
	1980	1984
Agriculture	24.7	25.7
Mining	.5	.3
Manufacturing	16.6	15.8
Electr, Gas, Water	1.7	1.8
Construction	3.2	1.8
Commerce	27.0	26.1
Trans & Commun	7.0	6.9
Financial services	7.9	3.7
Other Services	6.1	11.5
Public Administration	5.3	6.4
	100.0	100.0

Source: Bank of Guatemala

Central Role of Agriculture. Table A.2 does not fully demonstrate the role of agriculture as the mainstay of the economy. While agriculture provides about a quarter of GDP, it accounts for as much as half the employment covered by Social Security. The manufacturing sector accounts for some 16% of GDP. However, its primary activity is processing farm products. Food, drink, and tobacco dominate the industrial sector.

In the initial stages of expanding the non-traditional sector in Guatemala the emphasis will likely be on agriculture-related activities. The structural effort to build significant non-

agricultural processing and manufacturing activities will be a long, ongoing process.

Inflation

Guatemala had relatively stable price levels during the early years of the 1980s. The exchange rate of 1 Quetzal per US was firm and accounted for the fact that there was negligible inflation in these years. The level of consumer and wholesale prices in 1983 was in fact below the level of 1981. Inflationary pressures were released in 1984 when the government legalized the parallel currency market. The situation worsened in 1985 as an increasing portion of foreign transactions were conducted at the parallel rate, which approached 4 Quetzales per US dollar.

Table A.3, below, shows the trend of Consumer Prices and Wholesale Prices over the span 1980 through 1985.

Table A.3
Price Trends, 1980-1985

	1980	1981	1982	1983	1984	1985
Consumer Price (1980=100)	100.0	111.4	111.8	116.8	120.8	143.4
Wholesale Price (1980=100)	100.0	111.7	105.3	106.2	112.2	138.3

Source: IMF, International Financial Statistics, November 1986

The National Institute of Statistics has estimated that the consumer price index has risen more than 20% between December 1985 and June 1986. The continued deficit in the national budget,

contracting markets for major export items, the erosion of a once thriving tourist industry, and labor pressure for wage advances all contribute to upward pressure on the general price level.

MAJOR ECONOMIC SECTORS

Agriculture

Unfavorable world markets for traditional export crops has exerted downward pressure on agricultural production in Guatemala since 1982. The major agricultural products are coffee, cotton, bananas, beef, sugar, and cardamom. These tend to be produced on a large-scale, plantation basis and are destined for export markets. The crops produced as local staples are maize, beans, and rice. Most individual farmers are engaged in growing these staples for domestic consumption.

The table below (Table A.4) shows agricultural production for selected crops over the period 1980 through 1984.

Table A.4
Guatemala
Production, Selected Crops, 1980-1984
(000 tons)

	1980	1981	1982	1983	1984
Coffee	163	173	159	153	140
Bananas	650	650	655	675	680
Cotton	156	114	71	48	59
Sugar	397	444	550	563	533
Dry Beans	80	82	84	89	90
Maize	902	997	1,100	1,046	1,038
Sorghum	78	86	77	100	82
Beef	79	95	75	63	64

Source: UN, Statistical Yearbook, 1985

Since 1984, agricultural output has shown some downward drift.

Forestry, Fishing, and Animal Herds

Forestry. Forest resources are rich and abundant, but only 30% of the timber areas are accessible. Conifers account for some 20% of the forested area. The most valuable woods are mahogany and cedar. Commercial exploitation is limited by the absence of a Government policy supporting timber harvesting and reforestation.

Fishing. Offshore and freshwater fish resources are ample. However, exploitation of shrimp resources are lagging as stocks near the shore have been too intensively harvested. Fish and shellfish supplies in deeper water still constitute a major export potential.

Animal Herds. The total animal herd is on the rise as a result of a major FAO development program. At present there are some 2.6 million cattle, 660,000 sheep, 810,000 pigs, and some 100,000 horses. Exports of live animals were on a modest uptrend in the early 1980s. As a result of the recent rise in regional protectionism the level of animal exports in 1985 was only 2,000 metric tons, barely 15% of the 1981 animal export volume.

Mining and Energy

Less than one third of 1% of Guatemalan GDP is accounted for by the mining sector. While there is a range of minerals, production is low. Nickel exploitation--customarily the major mineral export--is held back by low world prices. Other mineral products include copper, iron, gold, silver, lead, zinc and marble. Output is insignificant and there are no exports.

Barely 50% of the nation's energy requirements are supplied by local petroleum and hydroelectric resources. Imported crude and petroleum products are needed to bring a balance between total energy demand and total energy supply. Recent major plans to expand hydroelectric capacity have been plagued with cost overruns and construction delays.

Manufacturing

As noted above, agricultural processing dominates manufacturing activities. The major non-agricultural elements in the manufacturing sector are printing and publishing and textiles and clothing. Non-agricultural manufacturing primarily serves local markets. Exports from this sector are mainly to the other nations of the region.

In the 1960s the Central American Common Market led to the establishment of a tire, steel, and petrochemical facility in Guatemala. Building materials became major products as reconstruction began after the 1976 earthquake. In the 1980s regional economic and political tensions caused a decline in Guatemala's industrial output.

Foreign Trade

Guatemala's foreign trade balance was consistently favorable through most of the decade of the 1970's. Since 1979 the balance of payments has usually been in deficit. The deficit has been controlled by strict government efforts to restrain imports. However, depressed commodity prices and flat demand have served to limit exports.

The nation's major exports--all traditional products--are coffee, sugar, bananas and cotton. Major imports are transportation equipment, industrial machinery, chemical products, petroleum products and non-durable consumer goods.

Table A.5 shows the nation's trade balance for the span 1980 through 1984.

Table A.5
Guatemala
Balance of Trade
(millions of Quetzals)

	1980	1981	1982	1983	1984
Exports fob	1,557.1	1,253.6	1,167.5	1,189.3	1,160.0
Imports cif	-1,598.2	-1,673.5	-1,388.0	-1,126.1	-1,277.4
Balance	-41.1	-419.9	-220.5	63.2	-117.4

Source: International Monetary Fund

The major role of the US as the destination for Guatemalan exports and the country of origin for imports is shown in Table A.6:

Table A.6
Guatemala's Main Trading Partners
(% of total value)

Exports	1980	1983	Imports	1980	1983
US	27.3	30.1	US	31.1	31.6
El Salvador	17.0	17.2	Japan	5.2	4.9
W Germany	6.9	3.9	W Germany	5.6	4.9
Nicaragua	4.0	4.0	El Salvador	8.5	9.1
Costa Rica	4.6	4.6	Mexico	7.4	...

Source: Bank of Guatemala

APPENDIX B

GUATEMALA

ECONOMIC MODEL FOR BENEFIT ESTIMATES

In order to prioritize recommendations it is necessary to arrive at some estimate of benefits. Such a computation in the case of Guatemala, to be entirely valid, would require a degree of analysis that is beyond the scope of this study. Therefore a simplified model was adopted which, if used consistently, would at least enable the prioritization to be achieved. The assumptions that are basic to the model involve a great deal of aggregation and broad treatment, but the general results were found to be consistent with observations and experience within the country.

Since the focus of the study is on non-traditional products it was first necessary to abstract the value of non-traditional products for Guatemala. The table "Non-Traditional Exports" shows that, of the $1,060 million exported in 1985, approximately 61% could be classified as traditional and 35% was non-traditional. Thus the recommended improvements will be required to increase non-traditional exports over the $416.5 million exported in 1985.

Table B.1
Guatemala
Non-Traditional Exports, 1985
($million f.o.b.)

	Total	Traditional		Non-Traditional
Guatemala	1,060	Coffee	451.5	
		Cotton	73.1	
		Bananas	70.9	
		Sugar	48.0	416.5
			643.5	
Percentage	100		61%	39%

Source: Economist Intelligence Unit, Quarterly Report

The next assumption answered the question: if the 1985 non-traditional exports could be represented by a single product, what would be the cost breakdown associated with its exportation? It is clearly not sensible to consider that transport equipment and bananas would have the same cost profile, but since this report showed that the typical non-traditional export was agricultural--mostly food--it was felt that the breakdown contained in the cost allocation table, below, was sufficiently representative.

Of significance in the table is the fact that transportation can account for between 35 and 40% of the c.i.f. price of the product, and margins are typically 20 to 25%.

Table B.2
Guatemala
Typical Export
Cost Allocation, 1986

	% of total
Production cost	33-48%
Transport cost	35-40%
Admin. costs	2-4%
Margin	20-25%
Sale price c.i.f.	100%

Based on figures obtained for typical non-traditional agricultural export.

To determine the benefit of programs directed at improving the various transportation modes, it was necessary to assess the contribution of the modes to the total cost of transportation. Again, this process involved a considerable amount of aggregation of dissimilar items, but for comparative purposes the breakdown shown in the table "Transport Profile" was found to give results that were acceptable.

Table B.3
Guatemala
Typical Export
Transport Profile, 1986

Mode	% of total
Land to port (1)	10-15%
Port charges (2)	3-6%
Sea freight (3)	65-75%
Port charges USA	12-16%
Total transportation	100%

Notes:

1 Includes collection from main production area and delivery to dockside

2 Includes all charges payable to port authority, stevedores etc., allocated to cargo loaded

3 Includes vessel operating costs from CA port to USA port

The table entitled "Total Cost Profile" gives a cost profile of the typical export from Guatemala. It shows the approximate amount spent on each cost category in 1985.

The total value of transportation for non-traditional exports from Guatemala is of the order of $258 million, with about $172 million being spent on sea freight and about $10 million being collected by the ports of Guatemala. The trucking industry accounted for about $31 million.

About $155 million was returned to the producers to pay for overheads and profit. This sum went to make interest payments, pay for depreciation, management, general equipment and so on, and what was left was profit.

If a recommended program manages to reduce transportation costs by 1%, or $2.6 million, the margin is increased from $155 million to $157.6 million, or 1.7%. If the same cost profile is maintained overall, then a margin of $157.6 million should support a total value of exports of about $700 million, or an increase of $13 million. On this basis there is about a 5 to 1 benefit to be obtained in non-traditional product exports for each percentage point decrease in the cost of transport.

Clearly, for the model to work accurately all other factors would have to remain equal: there would have to be no change in production cost, and rates of interest--a large component of margin--would also have to be unchanged. There are efforts being made in Guatemala to reduce both these factors, in the face of which there is probably some small capacity to absorb increases in

the cost of transportation. The individual reports have shown, however, that non-traditional exports are extremely sensitive to both economic conditions and cost of transportation, and factors that have served to reduce the amount available for margin have also served to reduce the total value of non-traditional exports.

Table B.4
Guatemala
Typical Export
Total Cost Profile

	Percent	Value US$ million
Production cost	33-48%	274.9
Transport cost	35-40%	257.7
Land	3-6%	30.9
Port C.A.	1-2%	10.3
Freight	20-30%	171.8
Port USA	4-7%	37.8
Admin. Costs	2-4%	20.6
Margin	20-25%	154.6
Total c.i.f.	100%	$687.23